Global Microelectronics Market

Total market size – USD 318 billion (2012), forecasted CAGR – 5-8%
By 2025 the market is expected to total USD 1 trillion

North and South Americas
- Demand concentrated in US
- Growth in 2012 – 40.7%
- USD 54.2 billion

Europe
- France and Germany - leaders
- Growth in 2012 – 27%
- USD 38.6 billion

Russia
- Oil price correlation
- Growth in 2012 – 7.6%
- USD 2.5 billion

APAC
- Booming demand in China
- Growth in 2012 r. – 35%
- USD 175.3 billion
The Russian Microelectronics Market – Historical Performance

Over the past 10 years the Russian microelectronics market has been in close correlation to the oil prices.
The Russian Microelectronics Market - Segmentation

Aerospace and defence accounts for over 40% of the Russia microelectronics market demand. The market is consolidated with dominant position of imports.

**Russian microelectronics market – end-user segmentation**

- **Aerospace and defence**: 60%
- **Other industries**: 40%

**Russian microelectronics market - competition**

- **Import**: 27%
- **Domestic manufacturers**: 73%
The Russian Microelectronics Market - Forecast

Russian microelectronics market growth will be driven by development in key end-user industries

Russian microelectronics market – Forecast
CAGR 2012-17: 9.2%
CAGR 2012-25: 8.4%

- Aerospace and defence – 12.0%*
- Telecom equipment – 7.5%
- Security systems – 7.4%
- Lighting systems – 5.9%
- Industrial automation – 5.5%

*CAGR 2012-25
The Russian Microelectronics Market – Key Characteristics

| State support of the industry; availability of historically established industrial clusters and created Special Economic Zones |
| Virtual inexistence of domestic electronics and instrumentation industries – key end-users of microelectronic components |
| Outdated infrastructure and shortage of human resources; industrial and educational cooperation are underdeveloped |
| Lagging behind the world in terms of key technological developments |
| Gradual substitution of domestic components by imports even in the most sensitive industries (A&D) |
## The Choice of Business Model

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<th>IDM</th>
<th>Fab-less</th>
<th>Foundry</th>
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<tbody>
<tr>
<td>In-house</td>
<td>In-house R&amp;D, manufacturing and sales</td>
<td>In-house R&amp;D and sales, outsourced production</td>
<td>Mass contract manufacturing to order</td>
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<td></td>
<td>Full product life-cycle</td>
<td>Lower CAPEX, faster route-to-market</td>
<td>Cost advantages due to economies of scale</td>
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<td></td>
<td>High capital intensity</td>
<td>Dependency on foundry, Intellectual property protection</td>
<td>Flexibility</td>
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<td>Gradual switch from IDM to fabless or fab-light</td>
<td>Facilitates innovative growth</td>
<td>High CAPEX, Lower ROI</td>
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<td>Need to ensure high output volumes to reach profitability</td>
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*IDM: In-house Design, Manufacturing, and Marketing*
Creation of Attractive Eco-system for Industry Flourishing

- Attracting private investors
- Hedging investors’ risks by the government

- High cost/deficit of land
- Lack of proper infrastructure

- Technology
  - Advanced tech development
  - Global R&D
  - University cooperation

- State-private partnership
- Tax and other benefits
  - Regulatory support measures

- Land and infrastructure
- Human resources

- Technology knowledge
- Management
Focus on Key Technologies Development

- Availability of technological capacity/experience in a given field in Russia
- Availability of sizeable domestic demand (end-user industry) and export opportunities
- Technology relevance/novelty in the world and prospects of its development
Quo Vadis?

Potential for microelectronics industry development in Russia can grow many fold, provided:

1. **There is increased support for local electronics and instrumentation manufacturing:**
   - National industry champions
   - Import substitution
   - Improve competitiveness

2. **Careful selection of technology directions for development:**
   - Availability of experience
   - Product life-cycle – outstripping and not catching up
   - Domestic demand and export opportunities

3. **State support:**
   - Eco-system – customs, taxation, ease of doing business, etc.
   - Selection of priority areas for development
   - Infrastructure – human resources (!), industrial and university cooperation

4. **Partnerships with global companies and technology clusters:**
   - From joint R&D to manufacturing