



Advanced Microcircuit Emulation (AME) Program - Developing Next Generation Emulation Technology

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Overview



- **Background**
- **Objective**
- **Structure**
- **Technology**
- **Current Status**
- **Plans**
- **Conclusion**



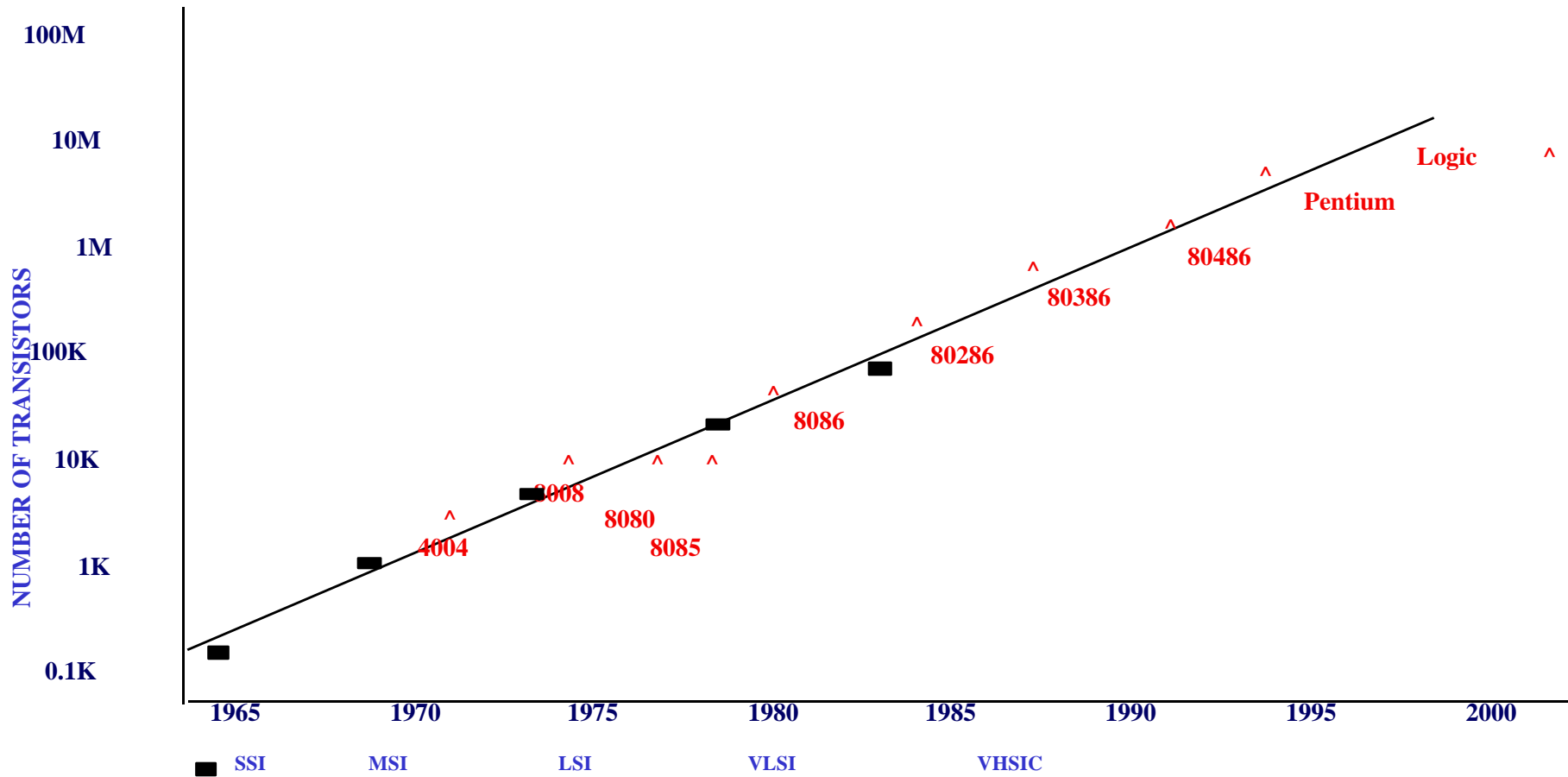
Background



- **Decreasing microcircuit technology family lifetimes**
 - **Altered market drivers**
 - **Computer and telecom**
 - **Capital intensive Fabrication Lines**
 - **Acceleration of fabrication and design technology**
- **DoD represents small and ever decreasing market portion**
- **Policy migration**



Technology Advancement





DLA & DSCC Responsibility



- **Defense Supply Center, Columbus (DSCC) is the DoD's Microcircuit Inventory Control Point (ICP)**
 - **Rapid fulfillment of Purchase Requests (PRs)**
 - Normal sources
 - On Demand Manufacturing
 - Innovative supply techniques
 - **Unfilled Purchase Request (PR) impacts**
 - Increase costs to customer & taxpayer
 - Decrease Defense Readiness
 - Lower support to the Warfighters



DLA & DSCC Initiative



- **Mitigate the microcircuit DMSMS impact**
 - **Developed and fielded a Generalized Emulation of Microcircuits (GEM) Program**
 - **Requests for non-procurable microcircuits beyond the scope of GEM's technology**
 - **Surveyed ICP, Weapon Systems, and DoD community**
- **Established a developmental technology program to provide advanced microcircuit emulation capability**
 - **Not related managerially or contractually to other existing programs**



AME's Objective



- **Develop Advanced Microcircuit Emulation Technology that provides an ongoing rapid, economical, high quality microcircuit emulation capability to support the non-procurable requirements of inventory control points, OEMs, and weapon systems**



AME Structure



- **Full and Open Competition**
 - **BAA Request For Proposal - late 1996**
 - **Optional Abstract process**
 - **Multiple Abstracts and Full Proposals**
- **Award to Sarnoff Corporation - 5 year effort**
- **Scope: Advanced digital devices, microprocessors/microcontrollers, linear, hybrids, memory, engineering services on assemblies using AME technology elements**



Sarnoff Facilities



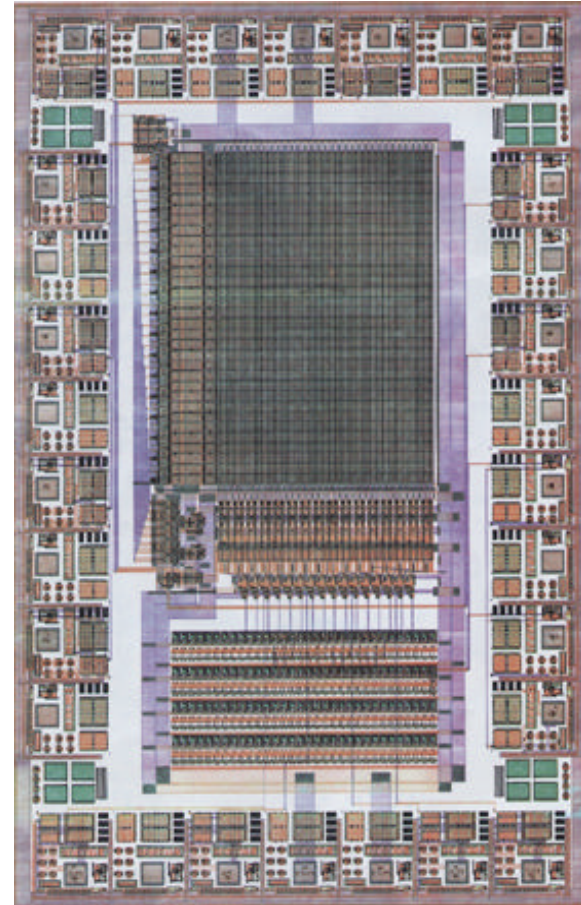
- **Originally RCA's corporate research lab**
- **Donated to SRI International in 1987 after GE bought RCA**
 - **Wholly owned subsidiary of SRI**
- **Extensive microcircuit design and test capability**
- **In-house fab facility - supports multiple product lines**
- **Large and ongoing Sarnoff Capital investment**



Technology



- Gate Array Technology
- Commercial design and fabrication equipment
- Scalable design libraries
- Mil Quality Program implementation
- In-house fabrication line
- Bipolar and CMOS used
- Successive technology releases



PROM Array



Current Status



- **1.2 μ process and hybrid 0.8/1.0 μ initiated**
- **Triple level metal process implemented**
- **High Voltage Process under development**
- **Numerous Arrays designed or currently under design**
 - **Small and large arrays for each feature size**
 - **Currently designing a 100K Gate Array**
- **Sample Parts in 1.2 μ due soon**
 - **first look at finished silicon for complete device**



Plans



- **Proceed to pure 0.8 μ technology**
- **Proceed to gate lengths below 0.8 μ**
- **Design and implement larger arrays**
- **Implement linear emulation capability**
- **Continue to reduce the cost/gate for microcircuit emulation**
- **Make increasing use of Hardware Description Languages and their inherent capabilities**



Conclusion



- **AME is an important complementary tool to other means of addressing DMSMS, e.g. Aftermarket, redesign, remanufacture, scavenging, system retirement, and COTS. No single method satisfactorily solves all situations. AME offers a long term, rapid, cost effective, high quality solution technology.**



A Final Thought



- **The Program Management (Alex Melnikow) and Contracting Officer's Technical Representative (Harvey Hanson) are most interested in discussing your non-procurable requirements. Your data helps us in updating AME's goals. Please contact us.**