Supply Chain Realities, Challenges & Opportunities For Fabless and Fablite Companies

Mike Noonen
Executive Vice President
Worldwide Marketing & Sales
GLOBALFOUNDRIES
The Semiconductor Cycle Has Not Been Repealed

YoY Growth for Semiconductor Industry

Source: IC Insights
Design & Manufacturing Are Longer Than Product Lifetime For Some Markets
Leading Edge Fabs Are Expensive & Fewer

Source: iSuppli 2011
Development Costs Are Higher Than Ever

Chip Design Costs $M

Source: iSuppli 2011
All It Takes Is One Missing Component To Stop Production
Fabs Worldwide Are at Risk

- Low Risk: 41%
- Moderate Risk: 22%
- High Risk: 36%

Number of Fabs

- Low Risk: 25%
- Moderate Risk: 34%
- High Risk: 43%

Capacity

Source: Semico Research Corp
Natural Disasters Have Bigger Impact Than Ever
Financial Goals Have Driven Days of Inventory to Consistent New Lows

Source: Barclays Capital, 2011
How Do We Address These Challenges?
Align With Open Collaboration Ecosystem To Leverage The Latest Innovations & Reduce Cost
Tight Collaboration Between Design and Manufacturing

IDM
Design + Manufacturing

Fabless Design

Foundry Manufacturing

Fabless Design

Foundry Manufacturing
Innovate Within A Foundry’s Process Platform

- **3GHz**
- **Innovate**
- **Within A Foundry’s Process Platform**

**MOBILE COMPUTING**
- **Laptop, Netbooks, Feature phones, Smartphones**

**LOW POWER**
- **1-3GHz**
- **STB, DTV, Games, Networking**
- **Watts Up to '00s mW**
- **Up to '0s mW**

**HIGH PERFORMANCE**
- **CPU**
- **Tablets, Mobile, Digital Consumer**

**28nm-HPP**
- Best solution for networking and wired
- Optimized performance / power

**28nm-LPH**
- Suitable for high end mobile computing

**28nm-SLP**
- Most cost optimized
- Low-Med performance
- (up to 1.8GHz)

**Performance**

**Lower Cost**

**Watts**
- Up to '00s mW
- Up to '0s mW

**GlobalFoundries**
Reduce Complexity By Combining Moore’s Law with “More Than Moore”

Wireless Connectivity: $F_t$, $F_{max}$, Noise, Q Factor, mismatch

Data processing: Speed, dynamic power, Standby current

MCU, Data Storage: Endurance, data retention, macro size, speed, power consumption

Power management: $R_{dson}$, $B_{Vdss}$

Data Storage Density, speed, static power

Logic Baseline

RF/Analog

SRAM

NVM

High Voltage

I/O RING
Reduce Cost & Risk By Proving Out IP And Prototypes With Multi-Project Wafers
Ensure Continuity By Having Multiple Sources Of Supply Within One Supplier

New York

Germany

Singapore
Mitigate Risk With Production In Low Hazard Zones

Saratoga County, NY – Fab 8

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Leverage Distribution To Strategically Manage Bill Of Materials and Logistics
Together We Can Address These Challenges and Maximize Opportunities

**Traditional Model**
- Geographically centralized
- Pre-packaged technology
- Homegrown R&D
- Opportunistic investment
- Contract manufacturer

**NEW Model**
- Globally distributed
- Optimized design solutions
- Collaborative innovation
- Long-term commitment
- Foundry partner
Thank You