Samsung Welcomes OCP’s ODSA

Craig Orr—Sr. Director of D/C, AI, Networking segments, Samsung Foundry | March 28, 2019
Topics

1. You are here (where DSA fits within Samsung)

2. FYI on Samsung foundry (expansion from mobile → HPC)

3. My personal interest in chiplets

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SAMSUNG ELECTRONICS

CONSUMER ELECTRONICS
- DIGITAL APPLIANCES
- PRINTING SOLUTIONS
- HEALTH & MEDICAL EQUIPMENT

IT & MOBILE COMMUNICATIONS
- VISUAL DISPLAY
- MOBILE COMMUNICATIONS
- NETWORKS
- MEDIA SOLUTION CENTER

DEVICE SOLUTIONS
- MEMORY
- SYSTEM LSI
- LED

3 Independent divisions
DSA = DEVICE SOLUTIONS AMERICAS

SAMSUNG

CONSUMER ELECTRONICS
IT & MOBILE COMMUNICATIONS
DEVICE SOLUTIONS

SALES & MARKETING
RESEARCH & DEVELOPMENT

MEMORY
FOUNDRY
S. LSI
LED
DISPLAY
Foundry Key words: full service, most trusted

- Design: Flexible Design Service
- Manufacturing: Assurance of Capacity & Quality
- Packaging: Advanced Package Solution
- Testing: Fast TAT Test Infrastructure

Flexible business models, Strengthened IP portfolio, Robust tool compatibility
Key differentiators

Vertical integration
- Design services
- IP
- Process
- Package
- Design flow

Economies of scope
- World 1st EuV (DRAM, FNDRY)
- 3D TSV production (HBM, CIS)
- 1st to market with HBM2e IP

Economies of scale
- ‘18 ~$23B DS Capex
- Largest semiconductor company in the world by rev., #2 in Foundry rev.

1 public statement of expectation in ‘18Q3 earnings call
Success in large, high performance chips

Design Services+
- Computer Vision
- D/C A.I. Train/Infer.
- D/C Video Encoding
- Network Switch/Router

Pure Foundry
- GPU
- FPGA
- 5G Infra
- Network Switch/Router

Success up to 780mm² from 7nm to 28nm; various biz models
Samsung Foundry Forum

May 14th, 2019, 1:00pm - 7:00pm
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My interest in chiplets?

1. Seeing a lot of interest in the field
   - Making chips bigger in X,Y, and/or Z directions e.g. AI driven by hardware...larger models
   - Future-proofing e.g. SerDes chiplets that can be swapped out for photonics
   - Temporal or process node de-coupling
   - New applications e.g. 3D stacking/hybrid bonding

2. Moore & the Economics of shrink
   - Higher costs = fewer customers per node. Lowering costs = more customers? Chiplets = lower costs?

3. Pace of innovation: H/W vs. S/W at exa-scale D/C

4. Need for new business models
My interest in chiplets—pace of innovation

Google search S/W evolution
‘04–’13: 16++ major new products in search alone

Google network H/W evolution
‘04–’13: 6 new architectures

Techcrunch (2013)

Jupiter Rising, Arjun Sing Et al. (2015)
My interest in chiplets - need for new biz models

How will Samsung contribute to ODSA?

TBD
Thank You