Plasma Control Technologies

Reaching for the next level

Participating in the new semiconductor cycle, enabling the huge technology inflections

Michael Kammerer, President PCT
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The Electronic Revolution Goes On

What people want

- smarter
- faster
- more affordable
- more powerful

electronic devices to be able to use the power of the digital age

Effects

- Explosive growth of data
- 4k video, IoT, Big data

Display as a key differentiator

- New categories
- VR/AR, AI, Smart Vehicles

Technology Inflections

10 / 7 nm structures
3D NAND
Multi patterning
Advanced Displays

long-term, multi-year inflections
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The New Semiconductor Cycles

Past cycles SEMI market

self-sustaining cycles

COMET PCT is outgrowing the market

3 months average billings

- COMET PCT
- SEMI North America

Book to Bill
SEMI North America

Dec. 2011: 100 %
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Industry Outlook

Consumers and Memory Requirements Drive our Market

- Solid demand for silicon, driven by smart devices and move to the cloud
- 3D NAND technology: driven by enterprise and consumer demands (cloud storage, smartphone content)
- Strong DRAM demand for enterprise and smartphone
- Transistor Inflections (smaller nodes require increased number of plasma tools)
- Investments in ≥ 28 nm continue, growing IoT driven demand and low-end smartphones
- Chinese market: large investments
Key Drivers for COMET PCT

- The SEMI industry is one of the fastest growing markets
- Demand for RF Power increases linearly due to more plasma process steps
- The cycles in the SEMI industry have become more self sustaining
- Shorter development cycles (< 12 months), reduced time to market
- Strong and close collaboration with Key Accounts is decisive for success

COMET PCT is very well positioned to continue to grow faster than the market.
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COMET PCT Strategy 2020

Key Account Partnering

New Applications

Market Coverage

Forward Integration

Commercialization

Technology Inflections
- e.g. 10/7 nm structures, 3D NAND, Multi patterning, Advanced Displays

Generators

Matching Networks

Vacuum Capacitors

New RF Technology

Plasma Control Technologies

Strategy until 2012

+ Strategy until 2015

+ Strategy 2020
The New One - cito Plus RF Generator

Designed for highest stability into dynamic load

Possible application areas
- Deposition processes
- ALD processes
- 200 mm systems

Extremely well feedback from test users

Volume manufacturing starts 2017
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Future RF Technology (coming soon)

New RF Control System – data exchange in real time

Today unknown functionalities will enable future SEMI nodes

- Higher measurement accuracy by digital signal processing
- Real time statistics and data analysis
- Build in measurement instruments implemented by software
- Fingerprinting & preventive maintenance
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Strong Differentiator:
Close Collaboration with Key Customers

- Invest in capacities ahead of customer’s needs
- Be the fastest – SPEED
- Design-to-cost
- Share information, partner in innovation
- Globally provide highly sophisticated technology, infrastructure and inventory
- Operational Excellence

Developing and penetrating Key Accounts means continuous investments

Comprehensive Key Account Collaboration

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Dedicated Sales Teams

Silicon Valley, USA
Europe
Asia

Running Business

COMET KAM Team
R&D Operations Sales Administration
Vision 2020

- Advanced Displays
- Internet of Things
- 3D Technologies

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