Outline

✦ The Business
✦ The Players
✦ The Buzz
✦ The End

“We got a call about a consultant.”
CMPUG July 2009
The Business of Business

Worldwide Semiconductor Revenues
Year-to-Year Percent Change

Source: WSTS

May ‘10 = +47.6% Y/Y
The Business of Business

Source: SEMI Industry Research and Statistics, July 2010
The Business of CMP - 2009

CMP Slurry & Pad Revenue (2009)

Recovery to 2007 peak
The Business of CMP - 2010

Total Slurry & Pad Revenue ($B)

- **Upside**
- **Conservative**

The Business of Business

D'oh!
The Business of CMP

- Pad market ~$709M
  - 3 year CAGR 8–9%
  - Outlook last year was 5.5%

- Pad Conditioner market ~$200M
  - Tracks pad market pretty well
The Players - Pads

- Dow still dominates with 78% share
- Measurable shares: *table for 4, please*
  - Cabot, Thomas West, JSR, innoPad
  - 3–5% share each; 7% Other

- Investor confidence: new funding rounds
  - innoPad $6M, April 2009
  - NexPlanar $3.5M, March 2010

- No departures in 2009
The Players - Pads

- Dow market share vulnerability is process-specific
  - ILD: Praxair (AMAT), innoPad, Toyo
  - S-STI: 3M
  - W: TWI, CCMP, innoPad
  - AMAT Cu: JSR, Fujibo
  - Ebara Cu: CCMP, Fujibo
The Players - Pads

🌟 Pad manufacturing portfolio continues to expand

★ Skived from a polyurethane cake
★ Individually molded
★ Molded grooves
★ Punched from cast sheet
★ Porosity on demand
★ Independent buttons
The Players - Pads

July, 2009

- Dow: 82%
- Cabot: 5%
- Thomas West: 5%
- JSR: 4%
- Other: 3%
- IVT Tech: 1%

July, 2010

- Dow: 78%
- Cabot: 5%
- TWI: 4%
- JSR: 3%
- innoPad: 3%
- Other: 7%

Techcet estimates of market share

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The Players – Pad Conditioners

- 3M & Kinik dominate with 55% share
  - A dozen other players with 0%–13%
  - Strong regional variations
  - Entegris Planargem™ unveiled March, 2010

- Manufacturing methods & materials continue to evolve
  - Microreplication
  - Non–random diamond placement
  - Ceramics, polymers replace metals
The Players – Pad Conditioners

- Pad conditioning paradigm shift
  - Startup: Confluense LLC (TBW)
  - Debris removal → defect reduction
  - Slurry dilution → replacement mode
    - 50% reduction in slurry consumption
  - Continuous pad cleaning
    - Less aggressive pad conditioning
    - >2x pad life, >2x conditioner life
    - Shorter rinse cycles
    - 50% reduction in water consumption
The Players – Pad Conditioners

July, 2009

- 3M: 33%
- Kinik: 22%
- Saesol: 13%
- Abrasive Tech: 11%
- Mitsubishi: 6%
- Ehwa: 5%
- TBW: 4%
- St. Gobain: 3%
- Other: 3%

July, 2010

- 3M: 32%
- Kinik: 22%
- Saesol: 13%
- Abrasive Tech: 11%
- Mitsubishi: 6%
- Ehwa: 5%
- TBW: 4%
- St. Gobain: 3%
- Other: 3%

Techcet estimates of market share

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The Buzz – The Biz

[* CMP Pad Market Dynamic Has Evolved
  ✦ More evidence of ‘normal’ competitive behavior
  ✦ CCMP pad presence regarded as both credible and sustainable
  ✦ Investors more confident in startups
  ✦ Influence of Dow acquisition
  ✦ Gearing up for greater process-specific customization
  ✦ Co-suppliers working more with pad startups*
The End

- CMP recovery is ahead of expectations
  - CMP consumables revenue will surpass 2007 peak levels by 2011 if not late this year
  - No residual impact beyond 2010

- CMP applications continue to increase along evolutionary trajectories
The Techcet Group, LLC

- Karey Holland, Ph.D.
- Steven Holland, Ph.D.
- John Housley
- Lita Shon-Roy
- Michael Fury, Ph.D.
- Jiro Hanaue
- Maggie Lee
- Larry Thompson, Ph.D.
- Allan Wiesnoski
The Techcet Group, LLC

🌟 2010 CMP Report Orders

🔹 Lita Shon–Roy
  🔹 925–413–9373
  🔹 LShonRoy@Techcet.com
  🔹 www.Techcet.com