



**FSA**



## FSA MIXED-SIGNAL/RF SUBCOMMITTEE

May 30, 2007



# AGENDA

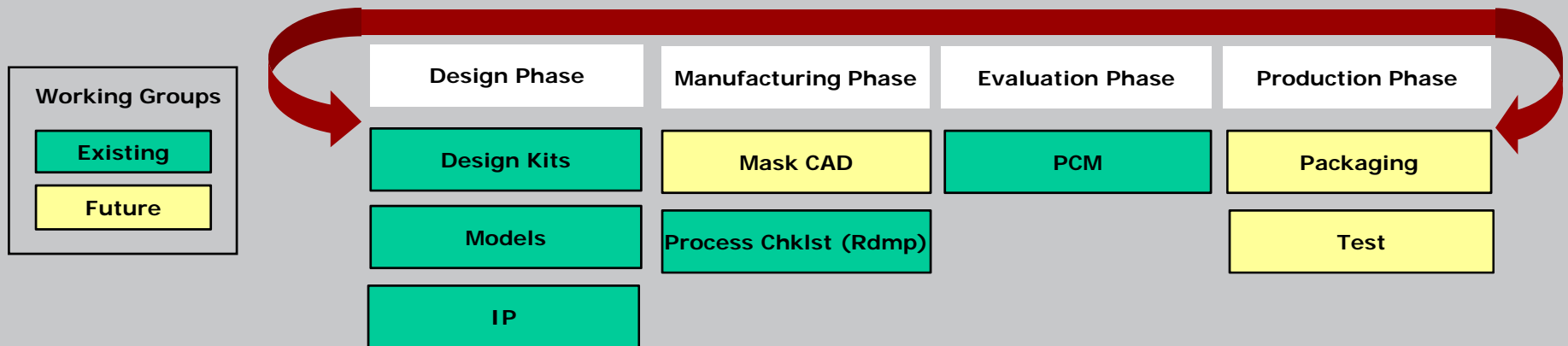
1. MS/RF Subcommittee and Working Group Overview
2. Working Group Updates
  - PDK/Modeling Working Groups – Ken
  - Process Checklist Working Group – Ken
  - IP Working Group – David
  - PCM Working Group – David
3. Working Group Leadership
4. Other Business





# MS/RF SUBCOMMITTEE OVERVIEW

- Charter: To Create a Mixed-Signal/RF Ecosystem
- Participants: MS/RF Design (EDA, IP, Design Services), Fabless, IDMs, Foundries
- Organized in several working groups



Current Working Group Leaders:

- Design Kits / Models / Process Checklist – Ken Brock
- IP / PCM – David Schwan





## MS/RF SUBCOMMITTEE OVERVIEW

- Major Issues to Address in 2007
  - Foundry adoption and compliance with new PDK 2.0 Checklist incorporating Model Checklist
  - Continue momentum on Process Checklist project with initial drafts at version 0.4
  - Find working group chairs to replace Ken Brock
  - New working groups established and scoped, need participation
  - Schedule, frequency of meetings





## PDK WORKING GROUP

- Process Design Kit Checklist
  - Standardized format for the way MS/RF **design kits** are documented and delivered to the MS/RF design community
  - PDK Checklist started in October 2003, delivered PDK Checklist 1.0 in March 2004, introduced PDK Checklist version 2.0 in July 2006
    - New version improves design for manufacturing by correlating SPICE models to layout
  - Version 1.0 adopted by all foundries
  - Version 2.0 dependent on SPICE Model Checklist adoption by foundries
  - New relevance in light of the PCell controversies within EDA
- Needs new working group leader

**Checklist and accompanying Users Guide may be downloaded from FSA's Web site at:**

**[www.fsa.org/committees/msrf/deliverables.asp](http://www.fsa.org/committees/msrf/deliverables.asp)**





## MODELING WORKING GROUP

- SPICE Model Checklist
  - Standardized format for the way MS/RF **models** are documented and delivered to the MS/RF design community
  - Delivered with PDK Checklist version 2.0
  - Adopted by leading AMS/RF foundries
  - Not yet adopted by digital foundries who also have AMS/RF offerings
  - Current version is 1.2 (includes decoder in Checklist to help model users better understand Checklist)
  - Digital foundries will need this same information in a standard format due to statistical variations at 65nm and 45nm
- Needs new working group leader

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## PROCESS CHECKLIST WORKING GROUP

- 2007 Status
  - The working group has developed a standard 2-3 page AMS/RF Process Checklist that reflects the key attributes of an AMS/RF foundry process offering for analog, mixed-signal, RF and high-voltage processes
  - The current version 0.4 includes stable sections for Process Type, Process Release Status, Process Attributes and Active Device figures of merit
  - Current work in progress:
    - Defining applicable figures of merit for each passive device
    - Developing standard definitions for each quantitative and qualitative metric used for classification
    - Developing definitions for Turn Around Time that balance customer expectations and fab capacity fluctuation realities
    - Defining applicable figures of merit for libraries and IP
  - Needs new working group leader (possibly combine w/PCM?)

**Checklist and minutes may be downloaded from FSA Website**





## IP WORKING GROUP

- IP Deliverable Checklist
  - IP deliverable checklist established and integrated into the Hard IP Quality Risk Assessment Tool.
  - The Hard IP Quality Risk Assessment Tool version 2.0 is now available. The latest version 2.0 of the Tool includes several new features that improve ease of use and increase communication for both integrators and vendors.
  - At this point, it looks like the Tool should have broad acceptance, and is being backed by large foundries, many IP providers and integrators.





## PCM WORKING GROUP

- Process Control Monitoring (PCM) Working Group
  - Working group focused on Process Control Monitors (PCMs) to define a standard way of communicating basic process parameters and criteria for mixed-signal and RF processes.
  - Not much activity to date, waiting for completion of Process Checklist WG.
  - Lack of activity due to my job change and company move. I will have more time in the second half of this year.
  - Efforts will likely move to the Process Checklist WG and PCM WG being merged due to a overlap of information in the two lists.
  - Need more member recruitment, I will focus on that in the next several months. Currently have 20 participants signed up.





## WRAP-UP

- Meeting Dates
  - PCM WG – 2H 2007
  - Process Checklist WG – TBD
  - PDK WG – TBD
  - Modeling WG – TBD
  - IP WG – TBD
  - Next MS/RF Subcommittee Meeting – 9/12/2007 (FSA Suppliers Expo)?

