INTEGRATED RELIABILITY WORKSHOP
SPECIAL INTEREST GROUPS (SIG)

OFFICIAL "SIG" GROUPS:

- "CHARM" Ion Implant monitor
  - Chair.....Wes Lukaszek (Stanford)
  - Mentor.....Cleston Messick (NSC)
- HAST Users
  - Chair.....Brian Walker (Digital)
  - Mentor.....Kris Mohan (NSC)
- Test Chips for Package Reliability
  - Chair.....James Sweet (Sandia)
  - Mentor.....Kris Mohan (NSC)
- Wafer / Die Level Burn-In
  - Chair.....David Kirchner (Sharp Mic.)
  - Mentor.....Barbara Vasquez (Motorola)
- Thin Oxides
  - Chair.....Cleston Messick (NSC)
  - Mentor.....John Suehle (NIST)
- Electromigration .
  - Chair.....Marty Johnson (NSC)
  - Co-Chair.....Raif Hijab (AMD)
  - Mentor.....Paul Marcoux (HP)
- WLR Implementation
  - Chair.....Gordon Claudius (Rockwell)
  - Co-Chair.....Hoang Huy Hoang
  - Mentor.....Pat Kennedy

INTEGRATED RELIABILITY WORKSHOP
SPECIAL INTEREST GROUPS (SIG)

MODIFICATIONS TO EXISTING SIG'S

ELECTROMIGRATION SIG:

Objectives:

- Fast Test correlation to Reliability - This will remain as one of the primary objectives of this SIG.
- Electromigration Test Structure Design - This will be integrated into this SIG which will be led by H. Schafft.

Electromigration Test Structure Design:

- Proposed Definition - The Electromigration test structure design SIG provides a means for bringing together Electromigration workers to revise, develop, evaluate, and promote the standardization of test structure designs for characterizing metallization reliability.
- Expected Activities:
  - Revise ASTM Standard Guide F-1259-89, and extend its scope so that it serves as a tutorial for those needing to select the most appropriate design for their application.
  - Consider test structure designs for conditions other than for flat, straight-line structures, such as, for Via testing and for stress Void testing.
- Membership - Open to anyone able to contribute to the work of the SIG. The concept of a working group was explored at the September, 1993 Fine-Line Conductor Task Force Meeting, which received active interest from the attendees.
- Motivation
  - ASTM Standard Guide F-1259-89 requires revision.
  - Determine ratio of widths of end-segments to test line.
  - Minimize Temp. gradients at end of Test Line.
  - Narrower line widths & larger grain sizes are now causing failures in end segments.
  - Need design development for other conditions.

Jay A. Shideler 10/27/93

INTEGRATED RELIABILITY WORKSHOP
SPECIAL INTEREST GROUPS (SIG)

MODIFICATIONS TO EXISTING SIG'S

Water / Die-Level Burn-In:

New Objectives:

- Gather & disseminate Reliability information of Burn-In Die.
- Provide a "clearing house" for information between Die Burn-In users and Die Burn-In "Pursuers"
- Continue to pursue new solutions for Die / Wafer-Level Burn-In (secondary goal).

HAST Users & Test Chips for package Reliability:

New Objectives:

- Cross-functional activities - Although these two SIG's will remain separate, they will work very closely together for their common cause.
- Team participation - Members of each team will participate on each others conference calls.

WLR IMPLEMENTATION SIG

OBSTACLES

1. TIME BUDGET
2. GOOD TEST STRUCTURES AND/OR REAL ESTATE AVAILABLE
3. CREDIBILITY OF WLR
4. WHAT TO DO WITH WLR DATA
5. APPLICABILITY
6. MANAGEMENT COMMITMENT
7. NEED SUCCESS STORIES - MUST PROVE THE BOTTOM LINE BENEFITS TO THE FABS
8. NEED NEW TOOLS AND TECHNIQUES TO BE ABLE TO RESOLVE <10 FITS
9. NEED TO COMPILE ALL WLR IMPLEMENTATION PAPERS
10. NEED TO EVLUATE CURRENTLY AVAILABLE COMMERCIAL SYSTEMS TO DEFINE "WANT" LIST

INTEGRATED RELIABILITY WORKSHOP
SPECIAL INTEREST GROUPS (SIG)

COMMON ELEMENTS OF A SUCCESSFUL SIG

- At least one "Champion"
- Each participant is dedicated, with a specific & crucial role
- Objectives are clear and specific
- Established infrastructure (formal or informal)
- Interaction is frequent, often each week
- Specific "Outputs" are clearly stated
- Membership tends to be small (usually under 5)
- Direct or indirect funding exist
- At least some tie-in with company work

INTEGRATED RELIABILITY WORKSHOP
SPECIAL INTEREST GROUPS (SIG)

SIG PANEL DISCUSSION

INFRASTRUCTURE:

- Charters - Needed to help "gel" the purpose of the SIG and to communicate to others what the SIG is all about. Need to be frequently reviewed and modified appropriately.
- Communication
    - EMAIL - Strong encouragement for all SIG members. Raif Hijab will distribute general information of how to obtain access to EMAIL. What about for non-active member that just want to be privy to SIG information?
    - SIG Bulletin Board
    - IEEE "USENET" Consider sending SIG charters.
    - Cross "polinization" among SIG's
- Formalized "Cross Functional" Team infrastructure
    - Regular telecommunication meetings?
    - Stifling for the formation of new SIG?
    - Restriction of creativity? What is a happy median?

PASSING THOUGHTS ABOUT IRW SIG's

- No new SIG's formed.....Why? Do we have enough? Is the "entry fee" for the formation of a new SIG too excessive?
- Enough time spent on "legitimizing" SIG's, now need to find a way to foster and promote an atmosphere to form new SIG's.
- Multi-tier formality levels for SIG's need?
- SIG's not yet an integral part of IRW!?

1993 INTERNATIONAL INTEGRATED RELIABILITY WORKSHOP

SPECIAL INTEREST GROUPS (SIG's)

After leaving this workshop all SIG's are encouraged to do the following to foster and promote their SIG's:

- Periodic teleconferences:
  - SIG's must set firm dates for their own meetings and stick to them.
  - Joint with SIG Chairs and SIG Coordinator
- EMAIL's - Strongly encouraged for all members.
- Accountability - Assign specific action items.
- Work Tie-In - Strive to achieve it.
- Schedules for Deliverables - Strive to maintain it.