President’s Report

On Reliability Society Elections

Each year the Reliability Society elects six Administrative Committee (Ad Com) members and five officers. The process begins with the establishment of a nominating committee consisting of a chairperson and four or more members of the Reliability Society, of which two shall not be members of Ad Com.

Dr. Samuel J. Keene is the chairman of the Nominating Committee for the 1994 elections.

A slate of nominees for members-at-large vacancies of the Ad Com is prepared by the Nominating Committee. A nominating petition carrying a minimum of 25 names of Reliability Society members, excluding students, shall automatically place that nominee on the slate.

The slate of nominees, containing more nominees than vacancies, is sent to the voting members of the Ad Com. Election, for a three year term, is based upon the highest number of votes, taken in descending order until all vacancies are filled.

Following the election of incoming Ad Com members-at-large, the nominating Committee submits nominations for the President and four Vice Presidents to the voting members of the Ad Com. (The newly elected members of Ad Com vote for these officers; the outgoing Ad Com members do not). A majority of the returned ballots determines the election.

Dr. Thad L.D. Regulinski, (F)IEEE, Ad Com Member and past president of the Reliability Society presented a resolution dated 21 January 1993 at the January Ad Com meeting recommending that a committee be established to study the mechanism for the election of officers and Ad Com members of the Reliability Society. The committee was to make recommendations at the March Ad Com meeting.

I appointed the following committee on the Elections Initiative:

Chairman, Harry E. Reese
Dr. R. A. Kowalski
N. J. McAfee
A. O. Plait
Dr. T. L. D. Regulinski

The committee recommendations (unanimous) were presented at the March Ad Com Meeting.

(continued on page 5)
Reliability Society Newsletter

**RELIABILITY SOCIETY OFFICERS**

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To The Editor:

I fully agree with the Newsletter Editor that our society should address both reliability and quality. In fact I feel that we must address quality, as quality and reliability are directly related.

There are two aspects of quality: (1) Do it right the first time, and (2) Find the defects and clean them up. Most people only think of quality in terms of the second aspect. That is why most of the people feel that quality and reliability are separate entities.

However, the first aspect is intimately related to reliability. I know of a case where hybrid circuits were improved from 70% first-time yield to about 90%. To the pleasant surprise of the Project the field failure rate was reduced to one third of the original rate. The article, "Influence of Quality of Manufacturing on Electronic Equipment and System Reliability," published in the July-Sept., 1987, Quality and Reliability Engineering International Journal, by Ender and Gerfling clearly demonstrates this point. A figure in the article indicates that quality uncorrected defects are positively correlated to reliability failures for their equipment. I call quality defects "visible flaws" and reliability failures "invisible flaws". The more visible flaws one experiences the more invisible flaws the equipment has. We should therefore concentrate on fast feedback of quality defect information to affected activities to reduce the chance of flaw formation in the products. In deed, that was what some Japanese companies had done, i.e., even only one defect found in quality is enough to trigger corrective actions to prevent its recurrence.

It is unfortunate that the original Quality and Reliability Symposium was changed to Reliability and Maintainability Symposium. Reliability and Maintainability are really not related. Only the outcome of reliability efforts serves as an input to maintainability. Quality efforts improve reliability.

Kam L. Wong
Kamba Industries
1130 Ronda Dr.
Manhattan Beach CA 90266
(310)372-4533

Dear Editor: This has reference to your column in the April issue of Reliability Society’s newsletter about change in the reliability society charter.

Your article has echoed my sentiments or a question I have been asking other reliability engineers from last more than two years. And most people are on both side of the arguments as stated in the newsletter.

Yes, reliability starts with the design and if a design is not reliable and does not meet the operational and performance requirements rest everything else is worse loss.

However, can the reliability of a product be achieved in the field without a good quality control process or management? Is the consumer interested in the reliability designs, models and predictions or the real performance without frequent failures in the field? Is the product working as and when required by the customer?

Customers in most cases talk about reliability but refer to as a quality issue. In fact many customers use the word reliability and quality to mean the same thing.

What about reliability of the production processes since production is normally controlled by the quality organization? Those of us who work in the design and production environment know very well how a wonderfully predicted system reliability takes a nose dive once the production starts. We Call FRA-CAS (Failure Reporting and Corrective Action) a task of reliability engineering to follow the design through the production and fix the problems.

We have lost market share in autos and consumer electronics to Japan not on the technology or poor design but due to un-reliable processes or our inability to meet the trouble free operation for the warranted period. That is because reliability tasks were divorced in the production.

Another question: where is real home for reliability engineers? Nowhere. Reliability engineers are reporting to Engineering, Quality, Logistics or any other organization in various companies. There is no uniformity in responsibilities either. With "right sizing" being the buzz word in the industry today, reliability tasks are performed by anyone in various organizations irrespective of their technical expertise or title.

What is the answer? In my opinion, reliability is surely a design function but can be separated from the quality functions if overall product reliability and market share is our concern.

Dr. Samuel Keene, Jr. Past President of the IEEE Reliability Society will be one of three speakers on a telecast on "Product Engineering as a Process" on September 30, 1993. This will focus on process improvement as a means to improve the quality of our products while reducing our development cycles. This telecast will go to various locations throughout the Western hemisphere. These locations are typically businesses or universities. The programs are also taped and then sent around the world. You can contact the IEEE telecast dept. to find out locations in your area or to see about how to get involving the broadcast locally. Their number is (808)981-8062.

Dr. Samuel Keene, Jr.
Senior Member IEEE, ASQC
Electronics & Space Corporation
MS 4210
8100 W. Florissant Ave.
St. Louis, MO 63134
(314)535-2410

Reliability Society Newsletter

Reliability Society Newsletter Inputs

The schedule for submittals is:

**Newsletter** **Due Date**
January November 19
February February 26
April March 26
July July 28
August August 27

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Reliability Society Newsletter

July 1993

Letters to the Editors
Chapter Activities

Cleveland
The Cleveland Chapter had three meetings during this period:
1) Our 7th meeting was on the Interna-
tional Space University. This meeting
was about the Aerospace Training Insti-
tute in Japan. Two experts: Hugh Arif
and Irene Belybalk talked about three
months of intensive training that was given
by the Institute: flight dynamics, mission
analysis, microgravity, space experiments,
living in space and a hands on virtual reality
simulation were briefly discussed. It was
an unusual opportunity to be long
remembered. International partners improve
the total quality of our NASA/LeRC vision.

2) Our 8th meeting was on Chaos,
Fractional, and Non-Linear Dynamics. This
meeting was from the IEEE Learning
Channel Video Conference Seminars.
Robert Devaney and Matt Kaplan talked
about:
- Chaos and the Transition to Chaos
- Fractals, Explosions an Julia Sets
- Mandelbrot Sets

3) Our 9th meeting was at the BFI Re-
cycling Center. The discussion of recy-
cling, Oterfin facility tour, landfill,
shredding area and compost activities
was very informative. A warm thank to
the BFI Officials who made this tour
possible.

We have been assigned to work on the
Host Subcommittee for RAMS '94. Our
task is to arrange for local society mem-
bers to act as projectionists and ushers.

Our community outreach project has
made additional progress. The final call
for panels/tutorials/papers has been is-
sued. We are talking about a poster ses-
tion for graduate students; something
new that may be a quality improvement.

All-in-all here in Cleveland we are
having fun staying active as volunteers.

Vincent Lalli, Chairperson
Cleveland Chapter

Philadelphia
The following activities were held:
- 19 Jan 93 - Managing New Product
  Development by Tom Floyd
- 16 Mar 93 - Technologies Use in Vi-
  bration Analysis by C.B. Stabler
- 20 Apr 93 - Present with Success
  (Presentation skills for the Technical Ex-
  pert) by Ms. Marjory Brody & Quanti-
  tative Evaluation of Cardiac Function and
  Hemodynamics by Doppler Echocardio-
  graphy by Dr. Jian-Fang Ren
- 18 May 93 - Improving Time to Mar-
  ket by Mr. Arnie Wolfman & The Unix
  Invasion by Ms. Susan L. Rosenstein

A special congratulations are extended from
the Philadelphia Chapter to Dr. W. Thomas Weir
for being elected to IEEE Fellow.
Fulvio E. Oliveto
Chairman Philadelphia

Switzerland
During 1992 the Swiss Chapter of
the IEEE Reliability Society organized,
in cooperation with the Reliability Labora-
tory of the ETH, five Meetings, one Inter-
national Workshop and two courses. The
cronology of the events was:
- 20 Mar - Meeting: Data Retention in
  large EPROMs (R. Leemann, ETH, 26 par-
  ticipants)
- May 7-8 - Int. Workshop on SMT Re-
  liability and Manufacturing Issues,
  Lugano-Agno (37 participants, see report
  in the July 1992 Issue of this Newsletter)
- May 18 - Meeting: Symbolic Travers-
  al of FSMs and its Application to Verifi-
  cation, Testing, and Diagnosis
  (Professors P. Camurri and P. Prinetto,
  Politecnico di Torino, Italy, 22 partici-
  pants)
- July 6 - Meeting: Parametric Estima-
  tion for Incomplete Reliability Data
  (Dr. B. Gerlach, Humboldt-Uni., Berlin,
  Germany, 19 participants)

- Aug, 31-Sept. 1 - Course: Failure
  Mechanics and Failure Analysis (M. Ciai,
  17 participants)
- Sept. 2-4 - Course: Reliability and
  Maintainability of Equipment and Sys-
  tems (A. Birolini, 36 participants)
- Sept. 2 - Meeting: Software Reliability
  Models (F. Popentin, Romania, 40 par-
  ticipants)
- Sept. 3 - Meeting: Reliability Aspects in
  Electrical Contacts (Professor J.G.
  Zhang, Beijing Univ., China, 42 partici-
  pants)

All meetings, workshops, and courses
were of a high technical content and
promp ted extensive discussions. High-
light was the workshop.

As for future events, the organization
of EORBT 93 is proceeding well. The pro-
grame committee selected out of the many
submissions 22 regular and 17 poster pa-
pers. Furthermore there will be 12 invited
papers and one keynote speech. See the
Conference Calendar for registration and
more information.

In addition to the already announced
courses (Sept. 8-9 - Failure Mechanics
and Failure Analysis of IC's, M. Ciai;
Oct, 19-21 - Reliability and Maintainabil-
ity of Equipment and Systems, Professor
A. Birolini) a course on "Impurities in
Silicon Wafers: Causes, Effects on Func-
tional and Analysis" will be held on
Sept. 14 and 15 in Zurich, Switzerland, by
P. Jacob and other speakers. It will deal
with the basic knowledge about heavy-
metal impurities in silicon wafers and
their effects on functionality and on
analysis methods, especially on the char-
acterization of minority-carrier lifetime.
Different methods of measurement and
characterization will be practically dem-
onstrated. For further informations on the
above courses please call Ms. Karin Am-
buehl Seehampari at +41 1 256-2743,
fax +41 1 251-2172.

Alessandro Birolini
Chairman

Job Fairs Update
IEEE co-sponsored job fairs are planned in these locations for the remainder of 1993.
City:
- San Jose, CA - July 12-13, September 13-14, November 15-16
- Washington, DC - August 2-3, September 20-21, November 8-9
- Detroit, MI - August 23-26
- Boston, MA - August 16-17
- Dallas, TX - October 18-19

Job fairs are open to all engineers. For more information concerning the job
fairs please call (800) 562-2820. Virginia residents should call (800) 553-1827.
In all cases, ask for the IEEE Career Fair Coordinator.

Ask*IEEE, Comprehensive New Document Delivery Service, Offers Researchers Speed and Economy
NEW YORK, Nov. 16 — The Institute of Electrical and Electronics Engineers, Inc. (IEEE) has announced its entry into the
document delivery business with a new service that will enable researchers from around the world to obtain scientific and
technical articles rapidly via phone, fax, e-mail and online requests.

Specializing in electrotechnology and computer science information, but offering ready access to information of any
kind, the new service, known as Ask*IEEE, is the first such venture by a leading primary publisher into document
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To assure the fastest and most efficient service, the IEEE has joined forces with Dynamic Information Corp. of Burling-
game, Calif., a pioneer in the document delivery business. The IEEE has estab-
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Director of Publishing Services. "Compared to other document delivery services,
we aim to be faster, less expensive and more comprehensive," she said. "Ask*IEEE will offer wider coverage than data base specific collections."

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ing, electronics and electrical engineering.

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Electronics Engineers, Inc.
IEEE Headquarters
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New York, N Y 10017-2394 USA
Contact: Jeff Vacker
(212) 705-8289

President's Report
Continued from front page

The committee recommended that the entire Reliability Society vote on the Ad Com Members and that the Ad Com Members continue to elect the officers. The committee's recommendation was unanimously supported by those present at the March Ad Com Meeting.

The necessary changes to the By-
laws are being drafted and will be voted on theing members of Ad Com at least twenty days before the September meeting as required by Article X, Section 2 of the IEEE Reliability Society constitution.

The new election process will cost the society several thousand dollars per year. (Primarily postage and handling.)

The purpose of the changes is to make it easier for the general mem-
bership to nominate potential Ad Com members by reducing the num-
er of signatures required from 25 to 12 and to provide the general mem-
bership with the vote so that they may select their Administrative Committee.

A vote on the new election pro-
cess will be taken at the September Ad Com meeting and, if successful, a vote will be taken on the modifica-
tions to the By-laws. The modified By-laws will be published in the So-
ciety Transactions and Newsletter and mailed to the IEEE Technical Activ-
ity Board (TAB) Secretary.

I would appreciate any comments you may have on the proposed changes. Article X, Section 2 of the Ad Com By-laws will present your views to the Ad Com before taking the vote. Your partici-
pation is encouraged.

W. Tom Weir
President, IEEE Reliability Society
FREE PROCEEDINGS
Your Reliability Society has the following surplus proceedings on hand:
1991 RAMS, 40 copies
1992 RAMS, 100 copies
1992 IRPS, 560 copies
1993 RAMS, 480 copies
Only those members who did not get a copy of any of these and want one, may request a copy by writing the following address:
Request should identify the proceedings desired and confirm that the request is a member of the Reliability Society. Requests will be filled only as long as supplies last. Send to: Anthony Coppola, 18 Mereose Ave., Utica, NY 13502
Multiple copies of proceedings may be requested for educational purposes by Academic institutions. Such requests will be honored so long as supplies last, and after individual Reliability Society member requests are filled.

BOOK NOTES
ROME LABORATORY RELIABILITY ENGINEER’S TOOLKIT
APRIL, 1993
An Application Oriented Guide for the Practicing Reliability Engineer
Rome Laboratory
Systems Reliability Division
Air Force Material Command (AFMC)

The newly released Rome LabsReliability Engineer’s Toolkit lives up to its name by being a very practical manual of reliability methods. The Toolkit is a collection of working sheets on various R&M topics including the major reliability handbooks and standards (i.e., MIL-HDBK-STD -217, -251, -781, -785, etc.). Useful checklists and tables have been prepared on these and other subjects. The book focuses on specific approaches without giving the broad view of all possible analysis methods but this is understandable since the book is really a good “how to” guide. To dwell further, the toolkit does provide a good set of references to the MIL standards, DIDs, and Rome Labs publications. The toolkit is well worth the cost given the amount of reference data it contains. Copies are available from Reliability Analysis Center, P.O. Box 4700, Rome, NY 13442-4700, Tel:(800)526-4802.

RELIABILITY, AVAILABILITY, MAINTAINABILITY AND SAFETY ASSESSMENT
Volume 1 - Methods and Techniques
Volume 2 - Assessment, Hardware, Software and Human Factors
Alain Villeneuve
John Wiley & Sons, 1992

This book came across my desk in a reference search for textbooks related to probabilistic risk assessment (PRA). It gives a broad overview of reliability techniques for qualitative and quantitative analysis including PHA, FMEA, PHA success diagrams, cause consequence, state-space, common-cause failures, case studies, etc. It covers a lot of ground, hence it has been presented in two volumes. The book being a translation from French there are some terminology differences. But you’ll find that it doesn’t get well in the way the explanations of the techniques are very good with ample examples and even historical background. It is always refreshing to see R&M assessment from another viewpoint. Responses are fairly well mixed between U.S. and European sources. The book serves as a good source of instruction for the newcomer to R&M as well as a good reference for the experienced analyst.

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DOE Field Failure Program Bulletin Board
This Bulletin Board provides information concerning the DOE FFP program as well as providing a vehicle for both commercial and government users to exchange ideas and information on component and system problems.
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(315)330-7120, Access (315)339-7043, Questions

MIL-HDBK-217 Status
A new set of models for passive components and surface mount components has been developed and will be sent out for review in June. These changes are expected to be released as Notice 2 to MIL-HDBK-217F in the Spring of 94. Anyone interested in contributing to the review of these new component models should contact Seymour Morris at: Rome Labs/ERSR
526 Brooks Road
Griffiss AFB, NY 13441-4505
Tel: (315)330-2951
Email: morrisi@ionex.r.aif.mil

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IEEE RELIABILITY SPEAKERS LIST

Five individuals have been added to our Speakers List. If you are seeking a qualified speaker please contact them or the original six speakers presented in the July 1992 Newsletter (page 7). If you would like to be considered for inclusion on this list, please contact me.

Richard L. Doyle
Consulting Engineer
5677 Soledad Road
La Jolla, CA 92037
Tel: (619) 459-6504

DR. SAM KEENE
3081 Fifteenth Street
Boulder, CO 80304
Work: (303) 924-7171
Home: (303) 447-3097
Dr. Keene is a past president of the IEEE Reliability Society (1992). He has published 50 papers in the reliability field.

MR. KEN LASALA
701 Cannon Road
Silver Springs, MD 20904
Work: (301) 951-8429
Home: (301) 384-7853
Mr. LaSala has published several papers on R&M and other engineering topics. He coauthored a chapter on man-machine reliability in the McGraw-Hill Handbook of Reliability Engineering and Management. He also taught graduate level basic reliability engineering in the University of Maryland graduate R&M program.

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Work: (619) 459-6504
Home: (619) 454-3454
He has taught Mechanical Stress Analysis (Mechanical Reliability) to graduate engineers working for the U.S. Navy (Civil Service). This course was taught as a 3 day seminar and has been presented at many different locations including Washington DC, Louisville KY, Crain's WA, and Port Hueneme CA. He developed the text and has taught the course over 25 times in the past 6 years.

DR. RALPH EVANS
804 Vickers Avenue
Durham, NC 27701-3143
Work: (919) 688-2860
Home: (919) 688-6707
He has taught many short courses on quality and reliability. He is a Fellow of the IEEE and in Managing Editor of the IEEE Transactions on Reliability. He is a Fellow of the IEEE and in Managing Editor of the IEEE Transactions on Reliability.

MR. TONY COPPOLA
ITRI
201 Mill St.
Rome, NY 13440-8200
Work: (315) 339-7075
Home: (315) 732-7608
He has been a guest instructor for the Air Force Institute of Technology, the Air Force Academy, and George Washington University. He is a Fellow of the IEEE.

QUALITY INITIATIVES PROGRESS REPORT

Dr. Tom Weir has asked me to serve as Chairman of a process action team on a quality initiative. The committee has five members: B.A. Bang, A. Coppola, R.L. Doyle, V.R. Lalli, and H. Malec. The question being studied should total quality be included in the Reliability Society (RS)? We want your feelings on this process action. Please write us a brief letter. Answer five questions in your letter:

1. Should total quality be included in the RS?
2. Any positive inputs for the process?
3. Any negative inputs for the process?
4. Should RS be renamed?
5. What name should we use?

Send your response to:
Mr. Vince Lalli, PE
NASA Lewis Research Center
MS 501-4
21000 Brookpark Road
Cleveland, OH 44135

Thank you for helping us learn how to serve you better.

Regards,
Sam Keene, Chairman
Quality Initiative Committee

IEEE HOTLINE

For member address changes, application information, membership assistance, IEEE publication orders:
1-800-678-IEEE

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
Electronic Device Society and Reliability Society sponsoring

the 1993 International
INTEGRATED RELIABILITY WORKSHOP
(Formerly the WAFER LEVEL RELIABILITY WORKSHOP)
October 24-27, 1993
Stanford Sierra Lodge, Lake Tahoe, CA

CALL FOR PAPERS

The name of the Workshop has been changed to reflect the necessity for an integrated approach to reliability in the semiconductor products of today and tomorrow. The name change also makes explicit the expanded scope of the Workshop. At the 1992 Workshop a new emphasis was placed on the Building-In Reliability Approach along with exploration of key reliability topics pertaining to packaging and to designing circuits and systems. These changes have occurred while the Workshop has continued to focus on key topics in Wafer Level Reliability. This year we continue to explore these topics and will address the issue of Known Good Die, which pertains to the quality and reliability of die for assembly in multipitch modules or packages. Known Good Die reliability, which represents an important emerging area, requires an integrated approach to reliability that unites the disciplines of circuit design, wafer manufacturing, package assembly, test, and reliability engineering.

1993 SUBJECTS:

BUILDING-IN RELIABILITY (BIR):

Session Chair: Warren K. Glaadon, Advanced Micro Devices
• General BIR Implementation Strategies or Implementation Roadmaps
• BIR Success Stories or Learning Experiences
• Reliability Assurance / Effort in the Areas of: Circuit Design, Selection of Materials for Wafer Processes and for IC Packages, and Manufacturing Process Control

WAFFER LEVEL RELIABILITY (WLR):

Session Chair: Kenneth C. Boyko, AT&T
• Practical Testing Methodologies and Guidelines for Use in Production
• Production Implementation Case Studies of WLR Testing
• Novel Test Methodologies for New Mechanisms or Rerfinements to Existing Test Methods

KNOWN GOOD DIE (KGD):

Session Chair: Barbara Vasquez, Motorola Inc.
• KGD as a Tool for Reliability Learning (BIR)*
• Primary focus of KGD session
• KGD Strategies or Implementation
• KGD Technologies (Contact, Flickering, Test, and Design)

Please submit before July 30, 1993 your 1-2 page proposal for a presentation at the Workshop. Your submission shall state clearly and concisely the results of your work and why they are significant. Representative data and figures that support your proposal are encouraged.

Send Proposals by Mail or FAX to:
David L. Erhart, Technical Program Chair
Motorola Inc.
1300 N. Alma School Road, CH240
Chandler, AZ 85224 USA
Phone: 602-814-4256
FAX: 602-814-4167
e-mail: DAVID_ERHART@EMAIL.SPS.MOT.COM

ADVANCE REGISTRATION

Advance Registration should be made now to insure you space at the Workshop. (THE WORKSHOP HAS LIMITED SPACE AND YOU ARE ENCOURAGED TO REGISTER EARLY).

The Registration fee is US$875 for IEEE Members and US$925 for Non-IEEE Members. The fee includes: food, lodging, and refreshments at the Stanford Sierra Lodge; Presentation ViewGraphs (provided at the Meeting) and the 1993 IRW Final Report (published after the Meeting). To get a registration form write to: IRW Workshop, P.O. Box 308, Westmoreland, NY 13490 or call 315-339-3976 (336-9134 fax or email: irw@aar,1212east.sai.com).
1994 INTERNATIONAL RELIABILITY PHYSICS SYMPOSIUM
April 11-14, 1994  Fairmont Hotel  San Jose, California

CALL FOR PAPERS
Building in Reliability continues to be the cornerstone of the Symposium's Program. Papers are solicited that illustrate the incorporation of reliability physics, reliability engineering, design for maximum performance margin, fabrication, assembly, and manufacturing process control to improve system reliability. The identification of new microelectronic failure mechanisms, improved insights into existing failure mechanisms, and new or innovative analytical techniques continue to be the mainstay of the 1994 Symposium. Papers dealing with the reliability of advanced packaging techniques for multichip modules are also requested.

YOUR PAPERS ARE SOLICITED ON:

- BUILDING-IN RELIABILITY FOR SI, GaAs, AND OPTOELECTRONIC DEVICES, especially:
  - Integration of reliability engineering with all elements of design
  - Establishing effects of input parameters on product reliability & control
  - Physical basis for design rules & concepts for minimizing jeopardy with experimental validation
  - Particular control and its effects on reliability
  - Improved manufacturing techniques for wafer fabrication through assembly

- TESTING METHODOLOGIES FOR RELIABILITY, including:
  - In-process wafer fabrication control and assembly, monitors, and sensors
  - Novel test structures and materials
  - Evaluation at wafer level or after partial processing
  - Reliability modeling & field failure rate prediction

- ANALYZING FOR RELIABILITY
  - VLSI failure mechanisms and models applied to:
    - electrolytic integrity
    - electromigration
    - low power voltage issues
    - hot carriers
    - latchup/ESD/ESD
  - Optoelectronic failure mechanisms and models applied to:
    - LED/laser degradation
    - lithographic wave guide
    - passive element degradation
    - optical fiber issues
  - Assembly related failure mechanisms and models applied to:
    - bonding
    - surface mount issues
    - multichip packages
    - die overcoats
    - mechanical stress
    - automotive
    - consumer
    - military & aerospace
  - System related failure mechanisms, including:
  - Failure analysis techniques: new, advanced, & simplified
  - Analytical instruments & techniques
  - Computer-Aided Reliability (CAR) applications & simulation with experimental validation

SUBMISSION DEADLINE: Received no later than October 1, 1993
Please submit fifteen copies of both a one page 50-word abstract, and a two-page summary that states clearly and concisely the specific results of your previously unpublished work, why the results are important, and how the results relate to prior work. The fifteen copies of the abstract and summary must either be on 8-1/2 by 11-inch or A4 paper and include the title of the paper, and the name, affiliation, complete return address, telephone and telefax numbers, and e-mail address, if available, for each author. Line drawings, key references, and coarse halftones may be included, but please no continuous-tone photographs. Submissions should be by post or express mail rather than by telefax, because telefax is not necessarily legible for review after subsequent duplication.

Mail to:  Paul J. Boudreaux, Technical Program Chairman, 1994 IPRP
         Laboratory for Physical Sciences
         8050 Greenmead Drive
         College Park, MD 20740 USA
         Tel 301-935-6547
         FAX 301-935-6723
         e-mail: boudreaux@eng.umd.edu

Conference Calendar
DATE & PLACE  CONFERENCE
CALL FOR PAPERS
1993
24-27 Oct.  1993 International
Stamford Sierra
Lodge,
Lake Tahoe, CA
(formerly the WAVER LEVEL
RELIABILITY WORKSHOP)
See the ad for this conference on page 9.
For info contact: Harry A. Schaft, NIST, Bldg. 225 Rm.
B360, Gaithersburg, MD 20899, Tel:301 975-2234,
Fax:301 948-4061, Email: schauf@sed.eeel.nist.gov

1994
16-18 March  International Society of Science and
Seattle,
Washington
Applied Technologies (ISSAT)
Conference on Reliability and Quality
USA
in Design
The ISSAT Conference is an international forum for presenta-
tion of new results, research development, and applications in
reliability and quality in design. Papers may address any aspect
of reliability and quality in design. Papers dealing with case
studies, experimental results, or applications of new or well
known theory to the solution of actual reliability and quality
problems in engineering design are of particular interest.
Suggested topics are:
- Modeling, Analysis and Simulation
- Fault Tolerance
- Software Reliability and Testing
- Quality Cost
- Maintainability and Availability
- Data Collection and Analysis
- Human Factors and Reliability
- Concurrent Engineering and Design
- Experimental Design for Quality Control
- Software Algorithms
- Safety-Critical Systems
- Risk Assessment Modeling
- Network Reliability
- Design Issues in Manufacturing
- Process Control and Management
- Quality Planning and Measurement
- Quality Engineering
- Total Quality Management Techniques
Submission of Papers: Four copies of the papers (maximum
15 double-spaced pages) should be submitted by 1 October
1993, to Program Chairman: Dr. Hoang Pham, Dept. of Indus-
trial Engineering, Rutgers University, P.O. Box 909, Piscat-
away, NJ 08855 USA, Tel: (908)932-5471, Fax: (908)
932-5467, Email: hopham@princess.rutgers.edu
IEEE INTERNATIONAL CONFERENCE ON
MICROELECTRONICS TEST
San Diego, CA

The conference, sponsored by the IEEE Electron Devices So-
ciety, will bring together designers and users of test structures
to discuss recent developments and future directions. The con-
ference will be proceeded by a one-day Tutorial Short Course on
Microelectronic Test Structures on 21 March. There will be
an equipment exhibition relating to test structure measure-
ments. Original papers presenting new developments in both
silicon and gallium arsenic microelectronic test structure re-
search, implementation, and application are solicited. A Best
Paper Award will be presented by the Technical Program Com-
mittee. Suggested topics include:
- Test Structures for Material & Process Characteristics
- Dimensional & Electrical Integrity of Replicated Features
- Test Structures for Device & Circuit Modeling
- Product Failure Analysis from Test Structure Data
- Test Structures for Reliability Analysis
- Wafer Fabrication Process Control Test Structures
- Test Structure Measurement Utilization Strategy

Paper Submission: Authors are asked to submit for review
30 copies of a 500- to 1000-word summary, a title page, major
figures, and data. These should reach the technical chairman
by Friday, August 13, 1993. The title page must include a
five-line abstract, the full address and FAX number of the
lead author, and author preference for oral or poster session
presentation. The selection process will be based on technical
merit and will be highly weighted in favor of papers that in-
clude measurement data and their analysis. Notice of papers
acceptance, with instruction for manuscript preparation, will
be sent to authors of papers selected for presentation by Fri-
day, October 29, 1993.

Please send summaries, with abstracts, to: Robert A. Ashton,
AT&T Bell Laboratories, 9333 S. John Young Parkway,
Orlando, FL 32819 USA. Tel (305) 654-7531, Fax: (407)345-
6004, Email: raa@aluxo.att.com

11-14 April
Fairmont Hotel
San Jose, CA
See the advertisement for this conference on page 10.

CONFERENCES 1993
1-3 Sept.
Zurich, Switzerland
EOBT '93, 4th European Conference on
Electrical and Optical Beam Testing of
Electronic Devices
Swiss Federal Institute of Technology (ETH)
The aim of EOBT is to provide an international biennial fo-
rum for the presentation and the discussion of the advances in
internal and contactless testing by Electron Beam (EBT), by
Optical Beam (OBT), and newly by Scanning Tunneling and
other local probe microscopy methods (STM, AFM, etc.).
The Conference covers applications on all types of semiconduc-
tors, electronic and microelectronic integrated circuits (includ-
ing test structures, and systems).
Address for information: Swiss Federal Institute of Tech-
ology (ETH), Reliability Laboratory, EOBT '93, ETH-Zentrum,
CH-8092 Zurich, Switzerland, Phone: +41 1 256 2743, Fax:
+41 1 251 2172, e-mail: ebtt93@nimbus.ETHZ.

27-29 Sept.
Cairns, Australia
ETFA '93
2nd IEEE International Workshop on
Emerging Technologies for Factory
Automation Design and Operation of
Palm Cove
Sponsored by: IEEE Industrial Electronics Society
This is a second in a series of workshops that focus on ap-
plications of emerging areas of technology to factory automa-
tion. Prospective authors are invited to submit papers which
address the issues of applications of new technologies to the
design and operation of "intelligent factories". Some of the
technologies on special interest will be:
- Knowledge Acquisition & Learning Processes
- Expert Systems
- Peri Nets and other modelling techniques
- Neural Networks
- Temporal & Logic Reasoning
- Fuzzy Systems
- Genetic Algorithms
- Micro-machines, robots, sensors, actuators and their
integration and design
- Intelligent Systems: hardware-software integration,
human-machine interfaces, machining systems, sensor
integration and fusion.

The workshop will centre around approximately 20 invited
papers and contributed long papers, and panel discussions, com-
plemented by around 30 short papers presented in poster form.
The workshop is meant to provide ample opportunities for dis-
cussing ideas and exchange of information between participants. Long
papers will be presented in talks of 40 minutes duration. There
will be only one poster session per day and the posters will re-
main on display for the whole day. Selected papers will be
published in the Conference Proceedings. Selected papers will

General Chairman: Richard Zawisza, Laboratory for Concur-
tent Computing Systems, Department of Electrical & Com-
puter Engineering, Swinburne University of Technology, John
Street, Melbourne 3122, Australia. Phone: +61 3 3408 1403, Fax:
+61 3 327 7813, E-mail: rze@stan.swin.vic.oz.au

General Vice-Chairman: Hirokatsu Fujita, Institute of Indus-
trial Science, The University of Tokyo, 7-22-1, Roppongi, Mi-
aku-ku, Tokyo 106, Japan. Phone: +81 3 3482 1403, Fax:
+81 3 3402 0578, E-mail: fjita@fujita3.i.is.u-tokyo.ac.jp

Second IASTED International Conference
Cambridge, MA, USA
Reliability, Quality Control and Risk
Assessment
See the advertisement for this conference on page 11.

17-21 Oct.
Kansas City, Missouri
1993 International Joint Power
Generation Conference
The Reliability and Availability (R&A) Committee of the
American Society of Mechanical Engineers (ASME) Power
Division is sponsoring the 1993 International Joint Power
Generation Conference (IJPGC). Topics for the conference are:
- Availability of repowered older power plant units
- Operating availability of cogeneration and to
waste-to-energy plants
- Plant betterment program impacts
- Practical applications of RCM
- Economic benefits of improved availability
- On-line equipment performance monitoring
- Data for RAM modeling analysis
- Availability of overseas and emerging technologies
- Availability impacts of the Clean Air Act
- Predicting, tracking, optimizing availability at unit or
component level
- Practical application of statistical methods for decision
making

For information, contact: Mr. Jim Lofe (B1412), Paper Re-
viewer Coordinator, ASME Reliability and Availability Com-
mittee, Southern Company Services, Inc., P.O. Box 2625,
Birmingham, AL 35202, Tel: (205) 877 7929

1-5 Nov.
4th International Symposium on
Singapore
Physical & Failure Analysis of
Integrated Circuits
Organised by the IEEE Singapore Section in co-operation
with the Centre for Integrated Circuit Failure Analysis & Reli-
ability, National University of Singapore.
The Technical Committee is now inviting the submission of
draft papers for presentation at IFA 93. Papers should deal with
work on:
- Failure Mechanisms, Failure Analysis Techniques, EOS/ESD
Studies, Reliability Testing, Design and Process Control for
Reliability in LSI/ VLSI, Semiconductoriconductor interalaces,
contacts and metallisation, Packaging, bonding, die attach and
encapsulation, Opto-electronic devices, Power devices
Authors are requested to submit two copies of a 500 word
summary and a 50 word abstract to:
Technical Committee Chairman, c/o IFA 93 Secretariat,
IEEE Singapore Section, PO Box 1066, Kent Ridge Post Office,
Singapore 9111, Tel: (65) 291-9609; Fax: (65) 292-8596
Final date for submission of summary and abstracts: 1 March
1993.
A four day exhibition of FA & Reliability related equipment and
services will be held concurrently with the Symposium.
Contact: SWEI Yong Khim, IEEE Singapore Section, 200
Jalan Sultan, 811-03, Textile Centre, Singapore
0719, Tel: (65) 291-9609; Fax: (65) 292-8596

IFA 93, Daniel Chan, National University of Singapore, Electrical
Engineering Department, 10 Kent Ridge Crescent, Singapore 0511,
Email: ELEC93@NUSVM.BITNET

24-27 Jan.
Annual Reliability and Maintainability
Anahiem Marriott Symposium
Anahiem, CA, USA
The theme for next year is "How You Can Make It Happen"-
Share your knowledge and expertise with your colleagues at
the world's premier forum for the assurance technologies.
Plan to attend.

1994
29-30 March
San Diego, California
PSAM-II International Conference
Devoted to the Advancement of System-
Based Methods for the Design and
Operation of Technical Systems and
Processes
The purpose of PSAM is to provide a forum for the presenta-
tion of scientific papers covering both methodology and ap-
lications of system-based approaches to the design and
effective, safe operation of technological systems and pro-
cesses. These include nuclear plants, chemical and petroleum
facilities, defense systems, aerospace systems, and the treat-
ment and disposal of hazardous wastes. The objective is to
share expertise to the benefit of all industries.
The following is a list of topics within the scope of the meet-
ing:
- Reliability and decision making
- Risk-based regulation
- Reliability-based design
- Probabilistic and deterministic models for process safety
management
- Uncertainty and sensitivity analysis
- Uncertainties in physical and chemical phenomenology
- Expert judgement in assessment studies
- Cognitive models of human behavior
- Design and evaluation of man-machine systems
- Human factors and human reliability
- Risk-based methods for improving operator performance
- Computerized control systems and operator aids
- Organizational factors and safety culture
- Automatic fault detection and diagnosis
- Redundancy Management
- Artificial intelligence in support of process safety
management
- Software dependability
- Earthquakes, fires, tornadoes, and other natural
phenomena
- Survivability and vulnerability
- Safeguards analysis
- Aging of systems, structures, and components
- Communicating the results of risk assessment and
management to decision makers, and the public

Technical Program Chairman: Professor George Aposto-
lakis, Mechanical, Aerospace and Nuclear Engineering Depart-
ment, 38-137 Engineering IV, University of California, Los
Angeles, CA 90024-1597 USA, Tel: (310)825-1300, (310)206-2302

July 1993

Reliability Society Newsletter
IF YOU NEED TO PREDICT RELIABILITY
...SEA has your solution.

INTEGRATABLE: You can be linked to the outside world through a user definable interface, so simple to use that most of the CAD/CAE companies either resell or recommend SEA’s tools.

WRITE ONCE REMEMBER ALWAYS: Because we use our products on a daily basis, we create them to be as efficient as possible. The structure of the software allows us to make data, once entered, always available, minimizing keystrokes required to get results.

FLEXIBLE: Through the use of user definable defaults you can emulate almost any other prediction methodology. Through the use of defaults you can also reflect your experience with the reliability of components or classes of components in your predictions.

TECHNOLOGY LEADER: We have consistently provided you the latest prediction technology. We created 217xF, long before the "F" release, because it made sense to make the best technology available to our users. We have also provided you the first Windows based FMECA program.

ACCURATE: We emulate MIL-HDBK-217 exactly. You get predictions that can stand up to the closest scrutiny.

COMPATIBLE: Because we use identical file structures, regardless of hardware platform, predictions performed on a personnel computer can be used on the workstation. Also library data created on the PC can be merged with those created on the workstation. You’re hardware independent!

TECHNICAL SUPPORT: In addition to fixes and enhancements on a regular basis you get assistance with technical problems. SEA is not just a software supplier but an experienced user, so your technical questions are answered by an experienced practitioner. We can also help you with all aspects of reliability management, including target setting, test plans, Environmental Stress Screening selection, manufacturing support and field reliability assessment.

Call to order your copy of REAP/REAPmate today!!! 1-800-688-2003

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