

# IBIS Open Forum Minutes

Meeting Date: **January 28, 2011**

Meeting Location: **Teleconference**

## VOTING MEMBERS AND 2011 PARTICIPANTS

Agilent	Radek Biernacki*, Fangyi Rao*
AMD	(Nam Nguyen)
Ansys (Ansoft Corporation)	(Steve Pytel)
Apple Computer	(Matt Herndon)
Applied Simulation Technology	(Fred Balistreri)
ARM	(Nirav Patel)
Cadence Design Systems	Terry Jernberg*, Ambrish Varma*
Cisco Systems	(Syed Huq), Mike LaBonte*
Ericsson	Anders Ekholm*
Freescale	(Jon Burnett)
Green Streak Programs	(Lynne Green)
Hitachi ULSI Systems	(Kazuyoshi Shoji)
Huawei Technologies	(Jinjun Li)
IBM	Adge Hawes, Greg Edlund*
Infineon Technologies AG	(Christian Sporrer)
Intel Corporation	Michael Mirmak*
IO Methodology	Lance Wang*
LSI	Brian Burdick
Mentor Graphics	Arpad Muranyi*
Micron Technology	Randy Wolff*
Nokia Siemens Networks GmbH	Eckhard Lenski
Signal Integrity Software	Walter Katz*
Sigrity	(Raymond Chen)
Synopsys	(Andy Tai)
Teraspeed Consulting Group	Bob Ross*
Texas Instruments	Casey Morrison
Toshiba	(Yasumasa Kondo)
Xilinx	(Raymond Anderson)
ZTE	(Huang Min)
Zuken	(Michael Schaefer)

## OTHER PARTICIPANTS IN 2011

TechAmerica	(Chris Denham)
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In the list above, attendees at the meeting are indicated by \*. Principal members or other active members who have not attended are in parentheses. Participants who no longer are in the organization are in square brackets.

## **UPCOMING MEETINGS**

The bridge numbers for future IBIS teleconferences are as follows:

Date	Meeting Number	Meeting Password
February 3, 2011	IBIS Summit Meeting at DesignCon – no telephone bridge	
February 18, 2011	601 116 211	IBIS

For teleconference dial-in information, use the password at the following website:

<https://cisco.webex.com/cisco/j.php?J=601116211>

All teleconference meetings are 8:00 AM to 9:55 AM US Pacific Time. Meeting agendas are typically distributed seven days before each Open Forum. Minutes are typically distributed within seven days of the corresponding meeting. When calling into the meeting, follow the prompts to enter the meeting ID. For new, local international dial-in numbers, please reference the bridge numbers provided by Cisco Systems at the following link:

[http://www.cisco.com/web/about/doing\\_business/conferencing/index.html](http://www.cisco.com/web/about/doing_business/conferencing/index.html)

NOTE: "AR" = Action Required.

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## **INTRODUCTIONS AND MEETING QUORUM**

No new participants.

## **CALL FOR PATENTS**

Michael Mirmak called for any patents or pending patents related to the IBIS 3.2, IBIS 4.2, IBIS 5.0, Touchstone 2.0 or ICM 1.1 specifications. No patents were declared.

## **REVIEW OF MINUTES AND ARS**

Randy Wolff called for comments regarding the minutes of the January 7, 2011 IBIS Open Forum teleconference. The minutes were approved with no changes.

## **MEMBERSHIP STATUS AND TREASURER'S REPORT**

Michael Mirmak noted that participants list in the minutes has been cleaned up. Renewal notices for 2011 membership have been sent out. If you have not received a renewal notice, contact any member of the board. January 30<sup>th</sup> is the end of the TechAmerica fiscal year. Bob Ross helped with closing the 2010 financials. Prepayments are being made for Summits and parser development.

## **WEB PAGE UPDATES**

No report.

### **MAILING LIST ADMINISTRATION**

Mike LaBonte noted that if you have not seen emails about the Summits recently, there may be a problem. There are 452 unique members now between the two mailing lists. He has an ongoing action item about automatically truncating the email archives that have been growing on one page for several years. It looks like he needs to develop a script to help with cleaning up the archives.

Michael Mirmak questioned how digital signatures are handled through the mailing lists. He has turned on digital signatures, and this appears to be causing issues with emails getting through the mailing list cleanly.

### **MODEL LIBRARY UPDATE**

Anders Ekholm reported that there have been no updates to the library since the last meeting.

### **MISCELLANY/ANNOUNCEMENTS**

None.

### **OPENS FOR NEW ISSUES**

None.

### **INTERNATIONAL/EXTERNAL ACTIVITIES**

#### **- DASC**

Michael Mirmak reported that there was a joint meeting between DASC and JEITA in Japan last week. He was not aware of any discussions related to IBIS. The DASC file and e-mail archive may be found at:

<http://www.dasc.org/>

#### **- P1735 Encryption**

No report. The IEEE Study Group on Encryption web reflector archives are found at:

<http://www.eda-stds.org/ip-encrypt/hm/>

#### **-VHDL-AMS Table-Driven Models**

Arpad Muranyi reported that the last meeting was January 10. He was not able to attend. More information can be found at:

[http://www.eda.org/twiki/bin/view.cgi/P10761/ProjectsArea#Table\\_driven\\_Modeling\\_Champion\\_J](http://www.eda.org/twiki/bin/view.cgi/P10761/ProjectsArea#Table_driven_Modeling_Champion_J)

#### **-Conferences**

The 2011 IEEE Workshop on Signal Propagation on Interconnects (SPI) will be held in Naples, Italy on May 8-11, 2011. The call for papers is out. More information can be found at:

<http://www.spi2011.unina.it/>

EMCCompo2011, the 8<sup>th</sup> International Workshop on Electromagnetic Compatibility of Integrated Circuits, will be held in Dubrovnik, Croatia, November 6-9, 2011. Organizers of the event have contacted the IBIS Open Forum to see if there is interest in having a tutorial session on IBIS. April 1 is the deadline for registration. More information can be found at:

<http://www.emccompo2011.org>

Bob Ross noted we are still investigating holding a European IBIS Summit meeting in conjunction with either SPI or EMCCompo. A third option is to hold a meeting in Munich not associated with any conference. Ralf Bruening is investigating the possibilities. Michael Mirmak noted that we should discuss this further at the next teleconference.

-Press Update  
None.

## **TECHAMERICA STATUS**

Michael Mirmak noted that if you are a company contact, Anne Mwai of TechAmerica contacted you about the new system, KAVI, which will be used by TechAmerica for voting and other meeting activities. Michael encouraged members to login and establish a password for the system. There will be more announcements and reminders of events coming from the KAVI system. We may start using the system for IBIS voting.

## **DOCUMENTATION UPDATE**

Michael Mirmak reported that the [ibis-editorial@freelists.org](mailto:ibis-editorial@freelists.org) mailing list was established for discussion of editorial changes, formatting, and style edits related to updating IBIS documentation. The technical writer that is working on the IBIS specification update is aware of the list and will be paying attention to comments coming across the mailing list. New IBIS 5.0 documentation can be reviewed at:

[http://www.eda.org/ibis/reformat\\_wip/](http://www.eda.org/ibis/reformat_wip/)

## **IEC APPROVAL ACTIVITIES**

Randy Wolff reported that he is awaiting a report from Dennis Brophy following his meeting with his IEC counterparts in Japan at the end of January. Randy hopes to have an update on progress for the next meeting. He also took the AR to contact Dennis as a reminder and to see if he would be at DesignCon next week for a face-to-face meeting.

Michael Mirmak asked about TechAmerica's question (from Anne Mwai) on the status of a PINS document for Touchstone 2.0 standardization. Randy replied that the PINS document is still current, but it would be helpful to update Anne with a timeline for when we plan to submit Touchstone 2.1 or a future revision beyond 2.1 for ANSI standardization.

## **SUMMIT STATUS**

### **-DesignCon 2011 Planning**

DesignCon is January 31 – February 3, 2011 in Santa Clara, CA. The Summit is scheduled for February 3. It will be held in the Great America Ballroom #3 in the Santa Clara Convention Center. Contact Lance Wang to register for the event. Pre-registration is encouraged to help with ordering of lunch and room arrangements. Bob Ross noted that anyone who has not sent in their presentations will need to bring in their own copies at this point. Lance noted that we have 41 attendees registered so far. Lance sent out the agenda yesterday.

Sponsorship opportunities for all upcoming IBIS summits are available, with sponsors receiving free mentions in the minutes, agenda, and other announcements. Contact the IBIS Board for further details.

## **IBIS QUALITY TASK GROUP**

Mike LaBonte reported that most discussion has been on the [External Test Load] and [External Test Data] keywords. They are discussing a BIRD from Anders Ekholm. Anders will give a presentation at the DesignCon Summit related to this BIRD.

The Quality Task Group checklist and other documentation can be found at:

[http://www.eda.org/ibis/quality\\_wip/](http://www.eda.org/ibis/quality_wip/)

## **IBIS MODEL REVIEW TASK GROUP**

No update.

## **ADVANCED TECHNOLOGY MODELING TASK GROUP**

Arpad Muranyi reported that the group is making progress on the AMI related BIRDs. He will give a presentation on the task group's status at the DesignCon Summit. The group is starting to close some items related to IBIS-AMI.

Task group material can be found at:

[http://www.eda-stds.org/ibis/macromodel\\_wip/](http://www.eda-stds.org/ibis/macromodel_wip/)

## **INTERCONNECT TASK GROUP**

Michael Mirmak reported that the group is continuing to work on MCP. Brad Brim has been collating discussion points related to the specification. Touchstone status will be reviewed to decide what version of Touchstone should be submitted for TechAmerica and ANSI standardization.

The IBIS-ISS draft has been approved by the task group and will be submitted to the Open

Forum for discussion at the next teleconference.

Task group material can be found at:

[http://www.eda.org/ibis/interconnect\\_wip/](http://www.eda.org/ibis/interconnect_wip/)

## **NEW ADMINISTRATIVE ISSUES**

None.

### **BIRD116: ADD IBIS-ISS TO [EXTERNAL MODEL] AND [EXTERNAL CIRCUIT] AS A SUPPORTED LANGUAGE**

Arpad Muranyi reported that he hasn't seen many comments about the BIRD. BIRDS 116-118 have been discussed further in the ATM task group. He will make a presentation related to the BIRDS at DesignCon.

Michael Mirmak noted that the BIRDS depend upon IBIS-ISS. Arpad agreed that the BIRDS should not be voted on until IBIS-ISS has been voted on in the Open Forum, but they can be discussed anytime. Bob Ross noted that he plans to review the BIRDS further and submit comments.

### **BIRD117.2: PARAMETERIZE A\_TO\_D AND D\_TO\_A CONVERTERS**

Arpad Muranyi reported that he is expecting to make some changes. BIRDS 117 and 118 make a reference to AMI parameters, but if the AMI file doesn't include the parameters, he is thinking of adding a default value. This would make the AMI models more portable.

The ATM task group has discussed analog AMI modeling questions. They need to figure out the high impedance isolation point within the Tx and Rx models. Arpad may have to rethink the details in the BIRDS after discussions this week.

Walter Katz noted there seems to be consensus that people want to be able to use IBIS-ISS to define AMI analog models, but there also is support for the modeling defined in BIRDS 121-124. SiSoft plans to keep those BIRDS up for discussion and eventual vote. Arpad noted that he thought Walter's change to BIRD 122 to allow use of IBIS-ISS is a good change. He doesn't see a technical conflict between the various BIRDS.

### **BIRD118.1: ANALOG PARAMETER ASSIGNMENTS**

No discussion.

### **BIRD119: IBIS-AMI NEW RESERVED PARAMETERS**

Arpad Muranyi asked if BIRD119 could be removed from the list, as it is split into BIRDS 121-124. Walter Katz agreed that this could be done. Radek Biernacki moved to vote on rejecting BIRD119. Walter seconded. With no objections, the BIRD was rejected.

**BIRD120: IBIS-AMI FLOW CORRECTION**

Arpad Muranyi noted that other than presentation from TI in the last meeting, there have been no other comments on BIRD120. The vote on it was tabled at the last meeting. We are waiting to see if TI will submit another BIRD. Arpad has not heard any information from TI on whether or not they are writing a BIRD. Walter Katz suggested any discussion from TI occur in the ATM task group meeting. Walter moved to table the discussion on BIRD120. Mike LaBonte seconded. The motion passed without objection.

**BIRD121: IBIS-AMI NEW RESERVED PARAMETERS FOR DATA MANAGEMENT**

Walter moved to table discussion on BIRDS 121-124. Bob Ross seconded. The motion passed without objection. Discussion on BIRDS 121-124 is now tabled until a later time.

**BIRD122: IBIS-AMI NEW RESERVED PARAMETERS FOR ANALOG MODELING**

Fangyi Rao commented that the BIRD needs to be updated to reflect proper use of S-parameter data. Walter Katz commented that the BIRD does need to be updated to address the discussion in the ATM task group.

Walter noted that he is making some changes to the BIRD to allow inclusion of IBIS-ISS models. Further work needs to be done.

**BIRD123: IBIS-AMI NEW RESERVED PARAMETERS FOR JITTER/NOISE**

Walter Katz noted that this BIRD is still under discussion in the ATM task group. Some new jitter/noise parameters are being discussed, and some minor changes to the BIRD will occur.

**BIRD124: IBIS-AMI NEW RESERVED PARAMETERS FOR DEPENDENCY TABLES**

Walter Katz noted that this BIRD is still under discussion in the ATM task group.

**BIRD125: MAKE IBIS-ISS AVAILABLE FOR IBIS PACKAGE MODELING**

Arpad Muranyi noted that the technical details of this BIRD have not been fully reviewed. Bob Ross noted that he had concerns with this BIRD adding too much complexity to the package modeling keyword.

Walter Katz stated that in 2008 the group started discussing EMD to enhance the EBD language. This brought about development of IBIS-ISS. He hopes to open further discussion on use of EMD and MCP to enhance package modeling and power delivery modeling. Walter noted that Brad Brim talked about a behavioral package model to allow application of one 4-port model to all the differential signals in a package, for example.

Arpad noted that he found mechanisms with this BIRD to get around the 1-1 connection limitations in IBIS from pad to pin.

Walter added that we may want some open discussion time at the summit to talk about IBIS-ISS and its implications on changes to package and power delivery modeling. Bob noted that there will be time for this at the meeting.

#### **BIRD126: IBIS-AMI NEW RESERVED PARAMETER AMI\_VERSION**

Arpad Muranyi noted that this is a simple BIRD. No changes have been made to it, and he does not expect any further discussion of the BIRD in the ATM task group. Arpad moved to schedule a vote on BIRD126 at the next Open Forum teleconference. Radek Biernacki seconded the motion. The motion was approved without objections.

#### **BIRD127: IBIS-AMI TYPOGRAPHICAL CORRECTIONS**

Arpad Muranyi introduced the BIRD. It deals with rules related to formats and defaults in IBIS-AMI. One thing this BIRD does not cover is the table syntax. This will be addressed in another BIRD. Walter Katz moved to table discussion of the BIRD until the next Open Forum teleconference. Bob Ross seconded. The motion was approved without objections.

#### **TSCHK2 BUG STATUS**

No new BUGs to report.

#### **IBISCHK5 BUG STATUS**

No new BUGs. Michael Mirmak noted that there has been discussion of BUG123, as it was discovered that the caution messages apply to both rising and falling values.

#### **IBISCHK5 UPDATE STATUS**

Bob Ross reported that the latest parser revision he received recently fixes BUGs 115, 116, 117 and 123. He has not had a chance to review the latest parser code. It needs to be reviewed further before release.

#### **IBIS-ISS STATUS**

Michael Mirmak reported that the IBIS-ISS document has been released by the Interconnect task group and will be available to begin reviewing at the DesignCon summit. There will be time for an introduction and discussion at the next Open Forum teleconference meeting.

The 0.95 revision can be reviewed at:

[http://www.eda.org/ibis/interconnect\\_wip/IBIS\\_ISS\\_DRAFT\\_095.pdf](http://www.eda.org/ibis/interconnect_wip/IBIS_ISS_DRAFT_095.pdf)

#### **C\_COMP AND CORNER DISCUSSION**

Walter Katz stated that there is an issue when doing the SPICE to IBIS process - you find the



C\_comp value is lower in the fast corner of the model. But C\_comp is specified as min, typ, and max, and you can't always assume a specific order to relate to slow and fast corners. This is a fundamental problem with IBIS defining min, typ and max. He would like to see the C\_comp corners be better defined.

Bob Ross agreed that the C\_comp value should ideally align with the min and max corners of the model. Walter thought a simple fix would be to create a [Model Corner] keyword that would associate the C\_comp (and other) corner values with the min, typ and max corners.

Bob noted that there has been lots of discussion on enhancing C\_comp. He and Walter will talk further about submitting a BIRD to address just the corner mapping of C\_comp.

## **NEW TECHNICAL ISSUES**

Walter noted that a new email reflector has been established for discussions of IBIS-AMI backchannel modeling. There will be presentations related to this at DesignCon. The email reflector is [ibis-serdes-backchan@freelists.org](mailto:ibis-serdes-backchan@freelists.org).

## **NEXT MEETING**

The next Open Forum summit will be held February 3, 2011 at DesignCon. No phone bridge will be available. The next IBIS Open Forum teleconference will be held February 18, 2011 from 8:00 to 10:00 AM US Pacific Standard Time. A vote is scheduled on BIRD126 at this teleconference meeting. The following Open Forum teleconference will be held March 11, 2011.

## **NOTES**

IBIS CHAIR: Michael Mirmak (916) 356-4261, Fax (916) 377-3788

[michael.mirmak@intel.com](mailto:michael.mirmak@intel.com)

Platform Applications Engineer, Intel Corporation  
1900 Prairie City Rd.,  
FM5-239  
Folsom, CA 95630

VICE CHAIR: Lance Wang (978) 633-3388

[lwang@iometh.com](mailto:lwang@iometh.com)

President/CEO, IO Methodology, Inc.  
PO Box 2099  
Acton, MA 01720

SECRETARY: Randy Wolff (208) 363-1764, Fax: (208) 368-3475

[rrwolff@micron.com](mailto:rrwolff@micron.com)

SI Modeling Manager, Micron Technology, Inc.  
8000 S. Federal Way  
Mail Stop: 01-711

Boise, ID 83707-0006

LIBRARIAN: Anders Ekholm (46) 10 714 27 58, Fax: (46) 8 757 23 40

[ibis-librarian@eda.org](mailto:ibis-librarian@eda.org)

Digital Modules Design, PDU Base Stations, Ericsson AB  
BU Network  
Färögatan 6  
164 80 Stockholm, Sweden

WEBMASTER: Syed Huq (408) 525-3399, Fax: (408) 526-5504

[huqs@cisco.com](mailto:huqs@cisco.com)

Manager, Hardware Engineering, Cisco Systems  
170 West Tasman Drive  
San Jose, CA 95134-1706

POSTMASTER: Mike LaBonte (978) 936-2147

[mlabont@cisco.com](mailto:mlabont@cisco.com)

Signal Integrity Engineer, Cisco Systems  
Mail Stop BXB01/1/  
1414 Massachusetts Ave  
Boxborough, MA 01719

This meeting was conducted in accordance with the GEIA Legal Guides and GEIA Manual of Organization and Procedure.

The following e-mail addresses are used:

[majordomo@eda.org](mailto:majordomo@eda.org)

In the body, for the IBIS Open Forum Reflector:  
subscribe ibis <your e-mail address>

In the body, for the IBIS Users' Group Reflector:  
subscribe ibis-users <your e-mail address>

Help and other commands:  
help

[ibis-request@eda.org](mailto:ibis-request@eda.org)

To join, change, or drop from either or both:  
IBIS Open Forum Reflector ([ibis@eda.org](mailto:ibis@eda.org))  
IBIS Users' Group Reflector ([ibis-users@eda.org](mailto:ibis-users@eda.org))  
State your request.

[ibis-info@eda.org](mailto:ibis-info@eda.org)

To obtain general information about IBIS, to ask specific questions for individual response, and to inquire about joining the EIA-IBIS Open Forum as a full Member.

[ibis@eda.org](mailto:ibis@eda.org)

To send a message to the general IBIS Open Forum Reflector. This is used mostly for IBIS Standardization business and future IBIS technical enhancements. Job posting information is not permitted.

[ibis-users@eda.org](mailto:ibis-users@eda.org)

To send a message to the IBIS Users' Group Reflector. This is used mostly for IBIS clarification, current modeling issues, and general user concerns. Job posting information is not permitted.

[ibis-bug@eda.org](mailto:ibis-bug@eda.org)

To report ibischk parser BUGs as well as tschk2 parser BUGs. The BUG Report Form for ibischk resides along with reported BUGs at:

<http://www.eda.org/ibis/bugs/ibischk/>  
<http://www.eda.org/ibis/bugs/ibischk/bugform.txt>

The BUG Report Form for tschk2 resides along with reported BUGs at:

[http://www.eda.org/ibis/tschk\\_bugs/](http://www.eda.org/ibis/tschk_bugs/)  
[http://www.eda.org/ibis/tschk\\_bugs/bugform.txt](http://www.eda.org/ibis/tschk_bugs/bugform.txt)

[icm-bug@eda.org](mailto:icm-bug@eda.org)

To report icmchk1 parser BUGs. The BUG Report Form resides along with reported BUGs at:

[http://www.eda.org/ibis/icm\\_bugs/](http://www.eda.org/ibis/icm_bugs/)  
[http://www.eda.org/ibis/icm\\_bugs/icm\\_bugform.txt](http://www.eda.org/ibis/icm_bugs/icm_bugform.txt)

To report s2ibis, s2ibis2 and s2iplt bugs, use the Bug Report Forms which reside at:

<http://www.eda.org/ibis/bugs/s2ibis/bugs2i.txt>  
<http://www.eda.org/ibis/bugs/s2ibis2/bugs2i2.txt>  
<http://www.eda.org/ibis/bugs/s2iplt/bugspl.txt>

Information on IBIS technical contents, IBIS participants and actual IBIS models are available on the IBIS Home page:

<http://www.eda.org/ibis>

Check the IBIS file directory on eda.org for more information on previous discussions and results:

<http://www.eda.org/ibis/directory.html>

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## IBIS CURRENT MEMBER VOTING STATUS

### I/O Buffer Information Specification Committee (IBIS)

Organization	Interest Category	Standards Ballot Voting Status	November 19, 2010	December 10, 2010	January 7, 2011	January 28, 2011
Advanced Micro Devices	Producer	Inactive	-	-	-	-
Agilent Technologies	User	Active	X	-	X	X
Ansys	User	Inactive	-	-	-	-
Apple Computer	User	Inactive	-	-	-	-
Applied Simulation Technology	User	Inactive	-	-	-	-
ARM	Producer	Inactive	-	-	-	-
Cadence Design Systems	User	Inactive	X	-	-	X
Cisco Systems	User	Active	X	X	X	X
Ericsson	Producer	Active	-	X	X	X
Freescale	Producer	Inactive	-	-	-	-
Green Streak Programs	General Interest	Inactive	-	-	-	-
Huawei Technologies	Producer	Inactive	-	-	-	-
Hitachi ULSI Systems	Producer	Inactive	-	-	-	-
IBM	Producer	Active	X	X	X	X
Infineon Technologies AG	Producer	Inactive	-	-	-	-
Intel Corp.	Producer	Active	X	-	X	X
IO Methodology	User	Active	X	X	X	X
LSI	Producer	Active	X	X	X	-
Mentor Graphics	User	Active	X	X	X	X
Micron Technology	Producer	Active	X	X	X	X
Nokia Siemens Networks	Producer	Inactive	X	-	X	-
Signal Integrity Software	User	Active	X	X	X	X
Sigrity	User	Inactive	-	-	-	-
Synopsys	User	Inactive	-	-	-	-
Teraspeed Consulting	General Interest	Active	X	X	X	X
Texas Instruments	Producer	Inactive	X	-	X	-
Toshiba	Producer	Inactive	-	-	-	-
Xilinx	Producer	Inactive	-	-	-	-
ZTE	User	Inactive	-	-	-	-
Zuken	User	Inactive	-	-	-	-

#### CRITERIA FOR MEMBER IN GOOD STANDING:

- MUST ATTEND TWO CONSECUTIVE MEETINGS TO ESTABLISH VOTING MEMBERSHIP
- MEMBERSHIP DUES CURRENT
- MUST NOT MISS TWO CONSECUTIVE MEETINGS

#### INTEREST CATEGORIES ASSOCIATED WITH TECHAMERICA BALLOT VOTING ARE:

- USERS - MEMBERS THAT UTILIZE ELECTRONIC EQUIPMENT TO PROVIDE SERVICES TO AN END USER.
- PRODUCERS - MEMBERS THAT SUPPLY ELECTRONIC EQUIPMENT.
- GENERAL INTEREST - MEMBERS ARE NEITHER PRODUCERS NOR USERS. THIS CATEGORY INCLUDES, BUT IS NOT LIMITED TO, GOVERNMENT, REGULATORY AGENCIES (STATE AND FEDERAL), RESEARCHERS, OTHER ORGANIZATIONS AND ASSOCIATIONS, AND/OR CONSUMERS.