

# **Test Technology Standards Committee (IEEE-SA Sponsor C/TT)**

## **Meeting Minutes**

July 8, 2020

### **1. Name of group**

The Test Technology Standards Committee (IEEE-SA Sponsor C/TT) met.

### **2. Date and location of meeting**

On Wednesday, July 8, 2020 via IEEE Meetings WebEx (teleconference).

### **3. Officer presiding, including the name of the secretary who wrote the minutes**

The presiding officer was Adam Cron, TTSC Sponsor Chair. The secondary presiding officer was Neil Jacobson, TTSC Sponsor Vice Chair. The recording secretary was Adam Ley.

### **4. Attendance, including affiliation**

The roll was called. The following persons were present:

<b>Name</b>	<b>Employer</b>	<b>Affiliation</b> (if different from employer)	<b>Role</b>
Adam Cron	Synopsys		Chair
Neil Jacobson	Formidable Engineering Consultants		Vice Chair
Adam Ley	ASSET InterTech		Secretary
Saman Adham	TSMC		Voting member
Alfred Crouch	Amida Technology Solutions		Voting member
Heiko Ehrenberg	Goepel electronic		Voting member
Michael Laisne	...		Voting member
Sankaran Menon	Intel		Voting member
Jim O'Reilly	Intel		Voting member
Jason Peck	Texas Instruments		Voting member
Rajesh Raina	NXP Semiconductors		Voting member
Jeff Rearick	AMD		Voting member
Mike Ricchetti	Synopsys		Voting member
Saghir Shaikh	Broadcom		Voting member
Steve Sunter	Mentor		Voting member
Bradford Van Treuren	VT Enterprises Consulting Services		Voting member
Tom Waayers	NXP Semiconductors		Voting member
Michael Wahl	University of Siegen		Voting member
Anthony Coyette	ON Semiconductor		Observer+
Soo Kim	IEEE		Staff

+ having expressed interest, completion of attendance to the next meeting will satisfy the requirements to be a voting member

## 5. Call to order, Chair's remarks

The meeting was called to order at: (EDT) 11:03 AM, Wednesday, July 8, 2020.

The presiding officer shared the patents slide set ([🔒](#)) and provided opportunity for those present to fulfill their duty to inform:

None present identified any potentially essential patent claim(s)/patent application claim(s).

## 6. Approval of minutes of previous meeting

The sponsor secretary reported that 1 issue of minutes for previous meetings had been submitted and was pending approval. These were made available to TTSC members and read to the meeting participants as follows:

- [TTSC meeting minutes 2020 04 29 \(concluded 2020 05 13\) as submitted 2020 07 08.pdf](#)

The sponsor secretary noted that these were thought to be complete and correct.

A motion for approval of the minutes of previous meeting [2020 04 29](#) was made, as follows:

MOTION	Approve the minutes of the meeting 2020 04 29, as submitted 2020 07 08.
Mover	Stephen Sunter
Second	Jeff Rearick
Votes	The vote was not conducted on a roll call basis. No objections were raised.
Decision	Approved

Accordingly, the minutes of these previous meetings, as approved, are finally recorded as follows:

- [TTSC meeting minutes 2020 04 29 \(concluded 2020 05 13\) as approved 2020 07 08.pdf](#)

**Action items review**

Action	Who	When
Organize a tiger team to work toward draft proposed common form letter for all calls for standard maintenance.	Adam Cron	Forthwith
Work toward draft proposed common P&P for all TTSC working groups on a staff-provided baseline and template.	Adam Cron/ Soo Kim	Forthwith
Provide information concerning IEEE WebEx account request for WG meeting use to those groups that state interest (known at this writing are P1687.1, P1687.2, and Scan/Array Dump).	Soo Kim	Forthwith
As available, provide TTSC with more information on policy/ FAQ as regards including standards under our sponsorship in the database of those IEEE standards available for adoption as National Standards.	Soo Kim	Forthwith
Compile the list of standards under TTSC sponsorship that are to be included in the database of those IEEE standards available for adoption as National Standards.	Adam Cron/ Soo Kim	Forthwith
Organize/ conduct election for TTSC new officers for a term to start January 1, 2021 (process per P&P to start so as to conclude not later than Dec 31, 2020).	(tba)	Forthwith
Organize/ conduct election for P1450.6.2 WG new officers.	Saman Adham/ Adam Ley/ Maciej Stanek	Forthwith
Effect TTSC sponsor approval of the new PAR for “P2929/ Scan and Array Debug”.	Adam Cron	Forthwith
Prepare revision PAR for 1149.4 (at least not later than so as to be considered in TTSC sponsor meeting of 3Q 2020).	Adam Cron	Forthwith
Identify action required for 4 standards expiring in 2021, as follows = 1450, 1450.1, 1450.6, 1581.	(tba)	(tba)

Action	Who	When
Effect approval of P&P for WG P1450.6.2.	Saman Adham/ Adam Cron	Forthwith

With no progress to report on the first two items, they were marked for carry over.

- Organize a tiger team to work toward draft proposed common form letter for all calls for standard maintenance.
- Work toward draft proposed common P&P for all TTSC working groups on a staff-provided baseline and template.

Six items were reported as done, as follows:

- Provide information concerning IEEE WebEx account request for WG meeting use to those groups that state interest (known at this writing are P1687.1, P1687.2, and Scan/Array Dump).
- As available, provide TTSC with more information on policy/ FAQ as regards including standards under our sponsorship in the database of those IEEE standards available for adoption as National Standards.
- Compile the list of standards under TTSC sponsorship that are to be included in the database of those IEEE standards available for adoption as National Standards.
- Organize/ conduct election for P1450.6.2 WG new officers.
- Effect TTSC sponsor approval of the new PAR for “P2929/ Scan and Array Debug”.
- Effect approval of P&P for WG P1450.6.2.

The remaining three items were to be addressed subsequently in the expressed meeting agenda.

- Organize/ conduct election for TTSC new officers for a term to start January 1, 2021 (process per P&P to start so as to conclude not later than Dec 31, 2020).
- Prepare revision PAR for 1149.4 (at least not later than so as to be considered in TTSC sponsor meeting of 3Q 2020).
- Identify action required for 4 standards expiring in 2021, as follows = 1450, 1450.1, 1450.6, 1581.

## 7. Approval of agenda

The presiding officer offered the following agenda:

- **Call to order, Chair's remarks**  
(to include, in every session, patents slideset)
- **Approval of agenda**
- **Approval of minutes of previous meeting**
  - **Action items review**
- **Technical topics**
  - **Elections review**  
*please expect to review election need/ status for*
    - **TTSC (Cron)**
    - **P1450.6.2 (Ley)**
  - **Status of Projects in Active Development**  
*please expect to consider PAR extension request for*
    - **P1687.1 (Crouch)**
  - ~~Status of Active Study Groups~~
  - ~~Proposals for New Activities~~
  - **Maintenance review**  
*please expect to consider revision PAR \*and\* sponsor ballot for, the following standards that would otherwise expire at the end of 2020:*
    - **1149.4 2010 C/TT/1149.4WG**  
**IEEE Standard for a Mixed-Signal Test Bus**  
*as previously noted: without Sponsor action, the following standards will expire at the end of 2021:*
      - **1450 1999 C/TT/STIL\_WG**  
**IEEE Standard Test Interface Language (STIL) for Digital Test Vector Data**
      - **1450.1 2005 C/TT**  
**IEEE Standard for Extensions to Standard Test Interface Language (STIL) (IEEE Std 1450-1999) for Semiconductor Design Environments**
      - **1450.6 2005 C/TT/1450.6WG**  
**IEEE Standard Test Interface Language (STIL) for Digital Test Vector Data-Core Test Language (CTL)**
      - **1581 2011 C/TT/SCIT1581**  
**IEEE Standard for Static Component Interconnection Test Protocol and Architecture**
  - **New business**
    - **Deprecating use of racially charged terminology in IEEE standards**
    - **Should Chairs be forwarding emails requests for SA Award nominations?**
- **Action items**

- (Subcommittee reports)
- (Items reported out of executive session)
- Next meeting – date and location
  - Proposed Oct 28<sup>th</sup>, 2020, 11:00am EDT,  
by IEEE meetings WebEx

A motion to approve the agenda was heard and seconded. Agenda approved.

## 8. Technical topics

### ■ Elections review *please expect to review election need/ status for*

- **TTSC (Cron)**

The need to organize the intended election was raised/ volunteers needed. Michael Laisne offered to sit as Elections Administrator. Saman Adham offered to sit as Elections Officer. Adam Ley offered that he had accumulated some draft email and spreadsheet templates useful for elections administration and that he would share them.

A required action in these regards was recorded as follows:

ACTION	Take steps to initiate the elections process for TTSC so as to conclude by year end 2020 (for terms to begin on Jan 1, 2021)
Who	Michael Laisne/ Adam Cron
When	Forthwith

A required action in these regards was recorded as follows:

ACTION	Share draft email and spreadsheet templates useful for elections administration.
Who	Adam Ley
When	Forthwith

- **P1450.6.2 (Ley)**

Adam Ley reported that the P1450.6.2 elections were in progress, running smoothly and expected to conclude by end of August (for terms to begin Sep 1, 2020).

- **Status of Projects in Active Development ([ref](#)) ([link](#))**

- **P1687.1 ([link](#)) (Crouch)**

Alfred Crouch presented the WG status, highlighting the need/ request for a PAR extension. He noted that the WG is actively meeting, with a draft underway (facilitated by the [1687.1 Working Group](#) workspace on the IEEE-SA iMeetCentral).

The stated reason for need of extension was to allow more time for ongoing alignment with P2654 as well as rulemaking and examples. It was suggested that at least 3 full quarters (extending through 2q 2022) would likely be required to complete all tasks through submission of the sponsor ballot package to RevCom.

The group was requested to consider picking up the pace of the effort by more frequent meetings and/or tiger teams.

A motion in these regards was made as follows:

MOTION	Approve two-year PAR extension for P1687.1
Mover	Alfred Crouch
Second	Michael Laisne
Votes	Approve 17, Disapprove 0, Abstain 0, Unheard 0.
Decision	Approved.

A required action in these regards was recorded as follows:

ACTION	Effect the approval of PAR extension for P1687.1
Who	Alfred Crouch/ Adam Cron
When	Forthwith

■ **Status of Active Study Groups**

There were no active study groups at the time of this meeting.


■ **Proposals for New Activities**

There were no proposals for new activities at the time of this meeting.

■ **Maintenance review ([ref](#)) ([link](#) **

*please expect to consider revision PAR \*and\* sponsor ballot for, the following standards that would otherwise expire at the end of 2020:*

- **1149.4 2010 C/TT/1149.4WG  
IEEE Standard for a Mixed-Signal Test Bus**

Adam Cron shared the PAR draft he had prepared ([link](#) ). He noted further that he intended to approach Bambang Suparjo concerning possible interest to chair the effort, but noted that he could fill that role himself if needed.

The question of compatibility to IEEE Std 1149.1-2013 was raised and affirmed. One instance of “2001” was noted for correction. No other issues were raised except for the need to identify the chair.



A motion in these regards was made as follows:

MOTION	Approve revision PAR for P1149.4 (with minor amendments as noted, including identification of volunteer to chair)
Mover	Adam Ley
Second	Jim O'Reilly
Votes	Approve 16, Disapprove 0, Abstain 1, Unheard 0.
Decision	Approved.

A required action in these regards was recorded as follows:

ACTION	Effect the approval of revision PAR for P1149.4 (with minor amendments as noted, pending identification of volunteer to chair)
Who	Adam Cron
When	Forthwith

- *as previously noted: without Sponsor action, the following standards will expire at the end of 2021:*
  - **1450 1999 C/TT/STIL\_WG**  
**IEEE Standard Test Interface Language (STIL) for Digital Test Vector Data**
  - **1450.1 2005 C/TT**  
**IEEE Standard for Extensions to Standard Test Interface Language (STIL) (IEEE Std 1450-1999) for Semiconductor Design Environments**
  - **1450.6 2005 C/TT/1450.6WG**  
**IEEE Standard Test Interface Language (STIL) for Digital Test Vector Data-Core Test Language (CTL)**
  - **1581 2011 C/TT/SCIT1581**  
**IEEE Standard for Static Component Interconnection Test Protocol and Architecture**

For Std 1581, in particular, it was noted that the means/ methods described therein have been applied to/ are actively used in JEDEC DDR4; at least the community should be surveyed as to interest in revision for content or simply to maintain active status.

For all, to include also 1450, 1450.1, 1450.6, there was a generally expressed sense that each remains important to their respective stakeholders.

Adam Cron noted that he could draft the PARs toward the end of at least maintaining active status, but that chairs for each would need to be found to move forward.

Saghir Shaikh noted his interest to chair a group. Other candidates identified were Heiko Ehrenberg (1581), ex-Inovys (for 1450.x) and Greg Maston (for 1450.x).

A motion in these regards was made as follows:


MOTION	Advance the consideration of revision PARs for P1450, P1450.1, P1450.6, P1581 (including identification of volunteers to chair each) with allowance for email vote at the discretion of the Sponsor chair.
Mover	Adam Ley
Second	Alfred Crouch
Votes	Approve 17, Disapprove 0, Abstain 0, Unheard 0.
Decision	Approved.

A required action in these regards was recorded as follows:

ACTION	Submit draft PARs for P1450, P1450.1, P1450.6, P1581 (pending identification of volunteers to chair each)
Who	Adam Cron
When	Forthwith

#### ■ New business

- **Deprecating use of racially charged terminology in IEEE standards**

As shared in the meeting, it was noted that interest in this topic was raised by an “open letter” published online by EE Times ([ref](#)) ([link](#) ).

Jason Peck noted that P1149.7 had already taken action, adopting initiator/responder as an alternative to master/ slave.

Several voiced an interest in having some direction from IEEE.

Soo Kim noted that she was aware that 1588 would be making related changes. She offered to inquire staff to see the current state of the matter.

A required action in these regards was recorded as follows:

ACTION	Inquire IEEE staff to see the current state of this matter.
Who	Soo Kim
When	Forthwith

A required action in these regards was recorded as follows:

ACTION	All groups chairs are requested to consider/ survey their respective standards regarding use of racially charged terminology therein and take up the matter with their working groups or up the chain, as suitable.
Who	All group chairs/ Adam Cron (follow up)
When	Forthwith

- **Should Chairs be forwarding emails requests for SA Award nominations?**

In the interest of time, by consensus of those assembled, this topic was deferred for discussion to email and/ or next meeting

## 9. Action items

New actions items, as mentioned above, and two carry overs, are recorded in the action summary table appended at the end of these minutes.

**Subcommittee reports**

Other than as given above, under various subheadings, no further subcommittee reports were given.

**10. Items reported out of executive session**

There was no executive session and, as such, no items were reported out of executive session.

**11. Recesses and time of final adjournment**

A motion for adjournment was heard and seconded. Adjournment approved.

Meeting adjourned at: (EDT) 12:00 PM, Wednesday, July 8, 2020.

**12. Next meeting--date and location**

As offered, the next meeting is to be arranged as follows:

NEXT MEETING	
Location	Via IEEE Meetings WebEx
When	(EDT) 11:00 AM, Wednesday, October 28, 2020

**Action Summary Table**

Action	Who	When
Organize a tiger team to work toward draft proposed common form letter for all calls for standard maintenance.	Adam Cron	Forthwith
Work toward draft proposed common P&P for all TTSC working groups on a staff-provided baseline and template.	Adam Cron/ Soo Kim	Forthwith
Take steps to initiate the elections process for TTSC so as to conclude by year end 2020 (for terms to begin on Jan 1, 2021)	Michael Laisne/ Adam Cron	Forthwith
Share draft email and spreadsheet templates useful for elections administration.	Adam Ley	Forthwith
Effect the approval of PAR extension for P1687.1	Alfred Crouch/ Adam Cron	Forthwith
Effect the approval of revision PAR for P1149.4 (with minor amendments as noted, pending identification of volunteer to chair)	Adam Cron	Forthwith
Submit draft PARs for P1450, P1450.1, P1450.6, P1581 (pending identification of volunteers to chair each)	Adam Cron	Forthwith
Inquire IEEE staff to see the current state of this matter.	Soo Kim	Forthwith
All groups chairs are requested to consider/ survey their respective standards regarding use of racially charged terminology therein and take up the matter with their working groups or up the chain, as suitable.	All group chairs/ Adam Cron (follow up)	Forthwith

**History of these minutes**

Meeting notes recorded by: Adam Ley.

Minutes submitted by: Adam Ley, TTSC Sponsor Secretary; October 28, 2020.

Minutes approved by: motion of TTSC Sponsor; October 28, 2020.