



InterNational Committee for Information Technology Standards (INCITS)

Secretariat: Information Technology Industry Council (ITI)

1101 K Street NW, Suite 610, Washington, DC 20005

www.INCITS.org



T11-2019-00121-v001

Minutes Fibre Channel Protocol
(T11.3) Task Group plenary meeting #127
2019 April 11 – 10:30 to 11:30 EST
Boca Raton, Florida, US

1 Opening remarks and introductions

The chair convened plenary meeting #127 of the Fibre Channel Protocol (T11.3) Task Group on 2019 April 11 at 10:30 EST. He introduced himself as Craig Carlson (Marvell), and the group thanked Chris Lyon and Amphenol, for the meeting facilities. Then Roger Hathorn (IBM) introduced himself as Vice-Chair and Patty Driever (IBM) introduced herself as secretary. Members then introduced themselves.

2 Approval of the Agenda

An electronic version of the agenda, [T11-2019-00074-v000](#), and supporting documents were made available among the documents for this meeting. The agenda was in HTML format with links to the appropriate supporting documents. The chair presented the agenda and made a call for any new agenda items. No new items were requested.

Dave Peterson (Broadcom) moved and Alan Rajapa (Dell) seconded that [T11-2019-00074-v000](#) be approved as posted as the agenda for this meeting. The motion passed unanimously.

3 Administrative Matters

3.1 T11.3 Admin Is Trivia

The chair, Craig Carlson (Marvell), stated that T11.3 administrative information is available among the documents for this meeting: Starting with the web page (<https://standards.incits.org/apps/org/workgroup/t11.3/>), links lead to contact information for T11.3 officers, membership rules, project information, procedures and operating rules, patent rules, and internet resources. The chair recommended that members familiarize with these rules so the business of the Task Group may be conducted expeditiously. Members were advised to see any of the officers if they require additional assistance.

3.2 Document Distribution

The chair instructed those present how to access meeting documents via the INCITS T11 Web Site Center page (<https://standards.incits.org/apps/org/workgroup/t11/documents.php>). The chair uploaded a zip file document containing all documents reviewed at this meeting: [T11-2019-00119-v000](#).

3.3 Other matters of grave concern

The chair instructed those present how to register using the electronic attendance list for this meeting. He reminded those present that the electronic attendance list would become the only formal record of attendance at this meeting.

4 Patents

The chair presented an overview of INCITS patent policies and guidelines, as found in INCITS Policies and Guidelines (<http://www.incits.org/standards-information/legal-info>) sub clause 8.4. In accordance with those policies, the chair made a call for patents that related to the standards being developed by this task group. Those companies wishing to file a patent declaration should send it to the chair of TC T11, with copies to Lynn Barra at INCITS (lbarra@itic.org).

5 Antitrust Policies

The chair noted that the INCITS Antitrust Guidelines applied to this task group meeting. The chair further noted that it was the responsibility of all attendees, and not just the officers, to ensure that the Guidelines are followed, and to terminate discussions if they are not. As examples, there should never be discussion of the following topics at any INCITS or INCITS subgroup meeting:

Any company's prices or pricing policies; Specific R&D, sales and marketing plans;

Any company's confidential product, product development or production strategies;

Whether certain suppliers or customers will be served;

Prices paid to input sources; or

Complaints about individual firms or other actions that might tend to hinder a competitor in any market.

The INCITS Antitrust Guidelines are available on the INCITS web site (<http://www.incits.org/standards-information/legal-info>).

6 Attendance and Membership

6.1 Current membership list

The chair encouraged those who attend T11 meetings regularly or intend to attend T11 meetings regularly and are not T11 members to consider joining the organization.

Information on how membership is gained, maintained, and lost in any INCITS Technical Committee or Task Group may be found in INCITS Organization and Procedures (<http://www.incits.org/standards-information/policies>) sub clause 3.8. An overview of these requirements was introduced by the chair and

was available to all attendees in the electronically distributed meeting documents.

The Vice-chair presented the current list of members and representatives, and invited corrections. The membership effective for this meeting, as adjusted for changes introduced at this meeting, is shown in Annex A. Attendance for this meeting is shown in Annex B.

The Vice-Chair noted that for some reason Amphenol has been moved from a voting membership to advisory in the online database. Amphenol has affirmed their desire to be a voting member and our records did not show them to have been in jeopardy. T11.3 chair to contact INCITS Secretariat to discuss the situation.

See Action Item [19-011](#).

6.2 *Voting memberships in jeopardy*

No company was in jeopardy after the last meeting.

6.3 *Changes in Membership*

6.3.1 *Changes in representation since last meeting*

Landon Noll was removed as an Alternate for Cisco Systems, Inc. All other voting representation for Cisco remains the same.

6.3.2 *New voting memberships*

No changes in voting membership occurred at this meeting.

6.3.3 *Voting memberships changed for other reasons*

None

6.3.4 *Changes in advisory membership*

None

6.3.5 *Changes in emeritus membership*

None

6.3.6 *Membership for this meeting and call for quorum*

Task Group T11.3 had 11 voting members at the previous T11.3 plenary meeting (February 07, 2019). At this meeting, April 11, 2019:

- 0 new voting member organizations (see 6.3.2);

- 0 reinstated voting member organization (see 6.3.3)

- 0 voting member organizations losing voting membership for not attending the required number of meetings (see 6.2); and

0 voting member organizations losing voting membership for other reasons (see 6.3.3), the voting membership of T11.3 is now at 11 members.

6.3.7 Quorum Call

10 members responded to the call for quorum. One third of the total membership for this meeting is 4. The number 10 exceeds or equals one third of the total membership for this meeting and also exceeds or equals 4. A quorum is therefore present for this meeting.

7 Approval of Minutes - Meetings #126

The prior plenary meeting of the Fibre Channel Protocol (T11.3) Task Group was #126 on 2019 February 07. The draft minutes of that meeting were posted as document [T11-2019-00041-v000](#).

You may review the T11.3 minutes by reviewing the version that is posted on the web site and requesting corrections either before the subsequent meeting using the Internet mail reflector (fc_protocol@standards.incits.org) or at the subsequent meeting in person. Non-editorial and/or substantial requests for corrections will be noted in detail at the next plenary meeting prior to the plenary body voting on the minutes. Until approved by the plenary body, these minutes are unofficial draft minutes only.

Dave Peterson (Broadcom) moved and Alan Rajapa (Dell) seconded to accept at this meeting [T11-2019-00041-v000](#) as posted as the minutes of T11.3 meeting #126 on 2019 February 07. The motion passed unanimously.

See Action Item [19-005](#).

8 Review of Old Action Items

ACTION 19-001	T11.3 secretary to post T11-2018-00338-v001 as the approved minutes of T11.3 meeting #125. See Clause 7 .
ACTION 19-002	T11.3 secretary to post T11-2019-00041-v000 as the draft minutes of T11.3 meeting #126.
ACTION 19-003	T11.3 chair to request INCITS initiate a T11.3 RFC letter ballot on Rev. 1.04 of FC-NVMe-2 (T11-2019-00044-v000). See Clause 10.4 .
ACTION 19-004	T11.3 chair to request that T11 accept the resolution to RFC ballot comments contained in T11-2019-00004-v001 and forward the resulting FC-SW-7 draft standard Rev. 1.07 contained in T11-2019-00003-v001 to INCITS for further processing. See Clause 10.6 .

All of the above action items were completed.

9 Liaison Reports

9.1 TC T11 and INCITS

T11 chair Steve Wilson (Brocade) asked if anyone wanted him to review the T11 TC report to other committees (posted as [T11-2019-00061-v000](#)). When no one requested a review of the report, Steve noted that the report is always available on the T11 web site for future inspection. Steve Wilson (Brocade) presented extracts relevant to T11.3 from the INCITS Report to T11 posted as [T11-2019-00101-v000](#).

9.2 Other liaison reports

No other liaison reports were presented.

10 Project Status

10.1 FC-FS-6

Dave Peterson (Broadcom) presented the information posted as [T11-2019-00089-v000](#) about FC-FS-6 ad hoc activity since the last plenary meeting of this Task Group.

10.2 FC-GS-8

Dave Peterson (Broadcom) presented the information posted as [T11-2019-00112-v000](#) about FC-GS-8 ad hoc activity since the last plenary meeting of this Task Group.

Craig Carlson (Marvell) will request T11 to request INCITS initiate a T11.3 RFC ballot on Rev. 11.06 of FC-GS-8 ([T11-2019-00103-v000](#)).

See Action Item [19-007](#).

10.3 FC-LS-4

Patty Driever (IBM) presented the information posted as [T11-2019-00113-v000](#) about FC-LS-4 ad hoc activity since the last plenary meeting of this Task Group.

10.4 FC-NVMe-2

Craig Carlson (Marvell) presented the information posted as [T11-2019-00115-v000](#) about FC-NVMe-2 ad hoc activity since the last plenary meeting of this Task Group.

10.5 FC-RDMA

Craig Carlson (Marvell) presented the information posted as [T11-2019-00114-v000](#) about FC-RDMA ad hoc activity since the last plenary meeting of this Task Group.

10.6 FC-SW-7

Craig Carlson (Marvell) presented the information posted as [T11-2019-00116-v000](#) about FC-SW-7 ad hoc activity since the last plenary meeting of this Task Group.

Craig Carlson (Marvell) made a motion, seconded by Dave Peterson (Broadcom), to recommend that T11.3 accept the resolution to T11 letter ballot comments contained in [T11-2019-00090-v001](#) to the T11 letter ballot of FC-SW-7 Rev 1.08 (and forward the resulting FC-SW-7 draft standard Rev. 1.09 contained in [T11-2019-00003-v003](#) to T11 for further processing. Motion passed 9-0-0.

See Action Item [19-008](#)

10.7 Joint T11.2/T11.3

Craig Carlson (Marvell) presented the information posted as [T11-2019-00110-v000](#) about Joint T11.2/T11.3 ad hoc activity since the last plenary meeting of this Task Group.

11 Other Business and Technical Items

Dave Peterson (Broadcom) gave an update on work on-going in FCP-5.

11.1 FC-LS-5 Project Proposal (T11-2019-00006-v000)

Dave Peterson (Broadcom) made a motion, seconded by Jason Rusch (Viavi), to recommend the project proposal for FC-LS-5 ([T11-2019-00006-v000](#)) be forwarded to T11 for further processing. Motion passed 9-0-0.

See Action Item [19-009](#)

11.2 FC-SW-8 Project Proposal (T11-2019-00069-v000)

Dave Peterson (Broadcom) made a motion, seconded by Jason Rusch (Viavi), to recommend the project proposal for FC-SW-8 ([T11-2019-00069-v000](#)) be forwarded to T11 for further processing. Motion passed 9-0-0.

See Action Item [19-010](#)

12 Review T11.3 Project Status

The current project status is available among the electronically distributed meeting documents as well as on the INCITS web site (<https://standards.incits.org/apps/org/workgroup/t11.3/>). The chair asked that if the facilitators or anyone else finds errors that they inform him.

13 Future Meeting Schedule

13.1 Plan for the next meeting week

Broadcom will host the next T11 meeting on 2019 June 06 in La Jolla, CA.

Two interim conference calls are scheduled: one for NVMe and one for FC-LS

Refer to the INCITS T11 meeting web site page (https://standards.incits.org/apps/org/workgroup/t11/documents.php?folder_id=2202) for the meeting announcement, which will always contain the latest information on future T11.3 plenary meetings.

PLEASE NOTE: If there is any conflict between the website schedule database, and the single ASCII sheet, the database is to be considered correct.

13.2 Ad-hoc meetings

Refer to the INCITS T11 meeting web site page for further details. (https://standards.incits.org/apps/org/workgroup/t11/documents.php?folder_id=2202). This URL will always contain the latest announcements of pending work group interim meetings and teleconferences.

14 Action Items

ACTION 19-005	T11.3 secretary to post T11-2019-00041-v001 as the approved minutes of T11.3 meeting #126. See Clause 7 .
ACTION 19-006	T11.3 secretary to post T11-2019-00121-v000 as the draft minutes of T11.3 meeting #127.
ACTION 19-007	T11.3 chair to request T11 to request INCITS initiate a T11.3 RFC ballot on Rev. 11.06 of FC-GS-8 (T11-2019-00103-v000). See Clause 10.2 .
ACTION 19-008	T11.3 chair recommend that T11 accept the resolution to T11 letter ballot comments contained in T11-2019-00090-v001 to the T11 letter ballot of FC-SW-7 Rev 1.08 and forward the resulting FC-SW-7 draft standard Rev. 1.09 contained in T11-2019-00003-v003 to INCITS for further processing. See Clause 10.6 .
ACTION 19-009	T11.3 chair to recommend to T11 that the project proposal for FC-LS-5 (T11-2019-00006-v000) be forwarded to T11 for further processing. See Clause 11.1 .
ACTION 19-010	T11.3 chair to recommend to T11 that the project proposal for FC-SW-8 (T11-2019-00069-v000) be forwarded to T11 for further processing. See Clause 11.2 .
ACTION 19-011	T11.3 chair to check with INCITS Secretariat as to why Amphenol has been dropped from voting membership. See Clause 6.1

15 Final Attendance Notice/Check

The chair reviewed the electronically registered attendance list, advised that the list was about to close, and reminded those who had not registered that the list would then become the only formal record of attendance at

this meeting.

Chair also reminded everyone that physical presence at the meeting is required in order to count towards membership requirements. If you sign in but are not physically present at the meeting, the sign-in will be discarded by INCITS.

16 Adjournment

Dave Peterson (Broadcom) moved and Alan Rajapa (Dell) seconded to adjourn at 2019 April 11 10:54 AM EST. The motion passed unanimously.

A Membership

Reflecting the changes at this meeting, the voting membership of T11.3 for this meeting is:

Organization	Name	Principal/ Alternate
Amphenol Corporation	Chris Lyon Hu Silver	Principal Alternate
Broadcom Inc	David Baldwin James Smart Ben Chu Mark Jones David Peterson Steven L. Wilson	Principal Alternate Alternate Alternate Alternate Alternate
Cisco Systems, Inc.	Mike Blair Fabio Maino Joe Pelissier J Metz Harsha Bharadwaj	Principal Alternate Alternate Alternate Alternate
Dell	Lou Ricci David Black Erik Smith Joseph White Gaurav Chawla Jeff Young Alan Rajapa	Principal Alternate Alternate Alternate Alternate Alternate Alternate
Fujitsu	Mark Malcolm Eugene Owens Kun Katsumata	Principal Alternate Alternate
Global Foundries	Adrian Butter John Ewen	Principal Alternate
Hewlett Packard Enterprise	Barry Maskas Krishna Babu Puttagunta Rupin Mohan	Principal Alternate Alternate
IBM Corporation	Roger Hathorn Patty Driever Stephen Guendert	Principal Alternate Alternate
Marvell Semiconductor Inc	Craig W. Carlson Dean Wallace Raul Oteyza Darren Trapp Alan Spalding	Principal Alternate Alternate Alternate Alternate
NetApp Inc	Frederick Knight Urmi Misra	Principal Alternate

Viavi Solutions Inc.	Jason Rusch Scott Baxter George Bullis Paul Gentieu	Principal Alternate Alternate Alternate
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Reflecting the changes at this meeting, the advisory (i.e., nonvoting) membership of T11.3 for this meeting is:

Organization	Name	Principal/ Alternate
Foxconn Interconnect Technologies	John Petrilla Glenn Moore William Peters Eric Chu	Principal Alternate Alternate Alternate
Futurewei Technologies Inc	Xu Qi ming Victor Gissin Eddy Zhou	Principal Alternate Alternate
Hitachi Vantara	Eric Hibbard Vincent Franceschini Erwin van Londen	Principal Alternate Alternate
MediaTek USA Inc	Tamer Ali Mau-Lin Wu	Principal Alternate
Microsoft Corporation	Lee Prewitt Paul Luber	Principal Alternate
SmartDV Technologies India Private Limited	Deepak Kumar Tala Tamil Selvan Ramanathan	Principal Alternate
Teledyne LeCroy Corporation	David Rodgers Douglas Lee Henry Poelstra	Principal Alternate Alternate
Unisys Corporation	Jeffrey Dremann Phil Shelton	Principal Alternate
VMware Inc	Neil MacLean Murali Rajagopal Ahmad Tawil Ping Huang Wenhua Liu Wenchao Cui	Principal Alternate Alternate Alternate Alternate Alternate

Reflecting the changes at this meeting, these people have been granted Emeritus membership in INCITS Fibre Channel (T11) Technical Committee, recognizing their many years of skilled leadership and high quality technical contribution:

Dr. William Ham
Mr. Gary Stephens
Mr. James Coomes
Mr. Robert Kembel
Mr. Joseph Mathis
Mr. Horst Truestedt

B Attendance

The following table lists those persons who electronically recorded their attendance at this plenary meeting. This includes representatives from voting member companies and may include representatives from non-voting advisory companies, as well as non-voting emeritus members and visitors.

This table also records the affiliations claimed by those who registered their attendance. The presence of a company or organization in the affiliation column does not imply that it is a member of T11.3, nor does it imply that the person in attendance is a representative of that company or organization.

See “Section A: Membership” above for a complete list of voting members of T11.3 as well as a list of non-voting advisory companies and emeritus members.

Sequence	Affiliation	Name
1	AMPHENOL CORPORATION	Chris Lyon
2	BROADCOM INC	David Peterson
3	BROADCOM INC	Steven L. Wilson
4	CISCO SYSTEMS INC	Mike Blair
5	CISCO SYSTEMS INC	Harsha Bharadwaj
6	DELL INC	Alan Rajapa
7	FUJITSU AMERICA INC	Mark Malcolm
8	GLOBAL FOUNDRIES	Adrian Butter
9	IBM CORPORATION	Patty Driever
10	IBM CORPORATION	Roger Hathorn
11	MARVELL SEMICONDUCTOR INC	Craig W. Carlson
12	NETAPP INC	Frederick Knight
13	TELEDYNE LECROY CORPORATION	Henry Poelstra
14	VIAVI SOLUTIONS	Jason Rusch

C Attendance at Ad Hoc Meetings

C.1 FC-NVMe-2

Organization	Representative	Member Company
Broadcom Inc	David Baldwin	Y
Broadcom Inc	Howard Johnson	Y
Broadcom Inc	David Peterson	Y
Broadcom Inc	Steven Wilson	Y
Cisco Systems Inc	Mike Blair	Y
Cisco Systems Inc	Harsha Bharadwaj	Y
Dell Inc.	Alan Rajapa	Y
Fujitsu America Inc	Mark Malcolm	Y
IBM Corporation	Patty Driever	Y
IBM Corporation	Roger Hathorn	Y
Marvell Semiconductor Inc	Craig W. Carlson	Y
Viavi Solutions Inc	Jason Rusch	Y

C.2 FC-LS-4

Organization	Representative	Member Company
Broadcom Inc	Steven Wilson	Y
Broadcom Inc	David Baldwin	Y
Broadcom Inc	Howard Johnson	Y
Broadcom Inc	David Peterson	Y
Cisco Systems Inc	Mike Blair	Y
Cisco Systems Inc	Harsha Bharadwaj	Y
Dell Inc.	Alan Rajapa	Y
Fujitsu America Inc	Mark Malcolm	Y
IBM Corporation	Patty Driever	Y
IBM Corporation	Roger Hathorn	Y
Marvell Semiconductor Inc	Craig Carlson	Y
NetApp Inc	Frederick Knight	Y
Viavi Solutions	Jason Rusch	Y

C.3 FC-FS-6

Organization	Representative	Member Company
Broadcom Inc	David Baldwin	Y
Broadcom Inc	David Peterson	Y
Broadcom Inc	Howard Johnson	Y
Cisco Systems Inc	Mike Blair	Y
Cisco Systems Inc	Harsha Bharadwaj	Y
Dell Inc.	Alan Rajapa	Y
Dell Inc.	DJ Brown	Y
Fujitsu America Inc	Mark Malcolm	Y
IBM Corporation	Patty Driever	Y
IBM Corporation	Roger Hathorn	Y
Marvell Semiconductor Inc	Craig W. Carlson	Y
NetApp	Frederick Knight	Y
Teledyne-LeCroy	Henry Poelstra	Y
Viavi Solutions	Jason Rusch	Y
Western Digital	Ralph Weber	N

C.4 FC-SW-7

Organization	Representative	Member Company
Broadcom Inc	Howard Johnson	Y
Broadcom Inc	David Peterson	Y
Broadcom Inc	David Baldwin	Y
Broadcom Inc	Steven Wilson	Y
Cisco Systems Inc	Harsha Bharadwaj	Y
Cisco Systems Inc	Mike Blair	Y
Dell Inc	Alan Rajapa	Y
Fujitsu America Inc	Mark Malcolm	Y
IBM Corporation	Patty Driever	Y
IBM Corporation	Roger Hathorn	Y
NetApp Inc	Frederick Knight	Y
Teledyne LeCroy Corporation	Henry Poelstra	Y
Viavi Solutions	Jason Rusch	Y

C.5 FC-RDMA

Organization	Representative	Member Company
Broadcom Inc	David Baldwin	Y
Broadcom Inc	David Peterson	Y
Broadcom Inc	Steven Wilson	Y
Cisco Systems Inc	Mike Blair	Y
Cisco Systems Inc	Harsha Bharadwaj	Y

Dell Inc	Alan Rajapa	Y
Fujitsu America Inc	Mark Malcolm	Y
IBM Corporation	Patty Driever	Y
IBM Corporation	Roger Hathorn	Y
Marvell Semiconductor Inc	Craig Carlson	Y
NetApp Inc	Frederick Knight	Y
Teledyne LeCroy Corporation	Henry Poelstra	Y
Viavi Solutions Inc	Jason Rusch	Y

C.6 FC-GS-8

Organization	Representative	Member Company
Broadcom Inc	David Baldwin	Y
Broadcom Inc	Howard Johnson	Y
Broadcom Inc	David Peterson	Y
Broadcom Inc	Steven Wilson	Y
Cisco Systems Inc	Mike Blair	Y
Cisco Systems Inc	Harsha Bharadwaj	Y
Dell Inc.	Alan Rajapa	Y
Dell Inc.	DJ Brown	Y
Fujitsu America Inc	Mark Malcolm	Y
IBM Corporation	Patty Driever	Y
IBM Corporation	Roger Hathorn	Y
Marvell Semiconductor Inc	Raul Oteyza	Y
NetApp	Frederick Knight	Y
Viavi Solutions	Jason Rusch	Y

C.7 Joint T11.2/T11.3

Organization	Representative	Member Company
Amphenol Corporation	Gregory McSorley	Y
Broadcom Inc	David Baldwin	Y
Broadcom Inc	Howard Johnson	Y
Broadcom Inc	Steven Wilson	Y
Cisco Systems Inc	Mike Blair	Y
CommScope	Sunny Xu	Y
Dell Inc	Alan Rajapa	Y
Finisar Corporation	Vera Koleva	Y
Foxconn Interconnect Technology Ltd (FIT)	John Petrilla	Y
Fujitsu America Inc	Mark Malcolm	Y
Global Foundries US2 LLC	Adrian Butter	Y
IBM Corporation	Patty Driever	Y
IBM Corporation	Roger Hathorn	Y
OFS Fitel LLC	Mabud Choudhury	Y

Teledyne LeCroy Corporation	Henry Poelstra	Y
Viavi Solutions Inc	Jason Rusch	Y