

November 16, 2022 (HST)

CFA General Meeting Minutes Day 1

- 1) The meeting was called to order by Hiro Ino at 1:38pm (HST) with opening remarks from chairpersons, Noda-san and Fujinawa-san.
- 2) The in-person attendees were introduced (in order of company name).

Count	Name	Company	Country
1	Fabian Ebenhoch	Angelbird Technologies GmbH	Austria
2	Hiroshi Noda	Canon, Inc.	Japan
3	Hiro Ino	CompactFlash Association	USA
4	Martin Wood	Delkin Devices, Inc.	USA
5	Jovanne Sanchez	Delkin Devices, Inc.	USA
6	Frank Chen	Exascend Co., Ltd.	Taiwan
7	Shingo Aso	Nextorage Corporation	Japan
8	Kenichi Satori	Nextorage Corporation	Japan
9	Nobuhiro Fujinawa	Nikon Corporation	Japan
10	Hiroki Atarashi	Nikon Corporation	Japan
11	Farshid Tabrizi	Other World Computing, Inc.	USA
12	Wes Brewer	ProGrade Digital, Inc.	USA
13	Hiroshi Machida	Sony Corporation	Japan
14	Kimiyasu Namekawa	Sony Corporation	Japan
15	Yuichiro Shimada	Sony Corporation	Japan
16	Jet Woo	TenaFe, Inc.	USA
17	Muralitharan Jayaraman	Western Digital Technologies, Inc.	India
18	Sharlene Chin	Western Digital Technologies, Inc.	USA

- 3) The remote attendees during any of the two-day sessions were:

Count	Name	Company	Country
1	Sean Xiong	Exascend Co., Ltd.	Taiwan
2	Brown Shu	Exascend Co., Ltd.	Taiwan
3	Kenichiro Yoshii	Hagiwara Solutions Co., Ltd.	Japan
4	Naoki Yamagata	Nextorage Corporation	Japan
5	Kazue Obunai	Nikon Corporation	Japan
6	Tsutomu Ohtani	Nikon Corporation	Japan
7	Hideaki Yamashita	Panasonic Corporation	Japan
8	Louis Liao	Phison Electronics Corporation	Taiwan
9	Tadashi Kobayashi	Western Digital Technologies, Inc.	USA

- 4) A review of the agenda for the 1st day afternoon and 2nd day was reviewed.

5) CFA Annual Executive Member Meeting

- a. 10 of 17 Executive Members were present for the meeting forming a quorum.
- b. The 2023 CFA Director election was held.
 - i. Hiro, the Inspector of Election, reviewed the 2023 board slate including the addition of Farshid Tabrizi from Other World Computing, Inc. and Fabian Ebenhoch from Angelbird Technologies GmbH. Hiro Ino is appointed as Director, ex officio, and was excluded from the election.

#	Candidate	Company
1	Wes Brewer	ProGrade Digital, Inc.
2	Nobuhiro Fujinawa	Nikon Corporation
3	Farshid Tabrizi	Other World Computing, Inc.
4	Hiroshi Noda	Canon, Inc.
5	Kenichi Satori	Nextorage Corporation
6	Hiroshi Machida	Sony Corporation
7	Edward Hsieh	SiliconMotion, Inc.
8	Fabian Ebenhoch	Angelbird Technologies GmbH
9	Sharlene Chin	Western Digital Technologies, Inc.
10	Hiro Ino	CompactFlash Association

- i. Open voting took place per earlier direction by the Board of Directors.

6) CFA Operations (Presented by Hiro, President)

- a. 2023 CFA Director election results were presented:

#	Candidate	Company	Vote For	Vote Against	Abstain
1	Wes Brewer	ProGrade Digital, Inc.	10	0	0
2	Nobuhiro Fujinawa	Nikon Corporation	10	0	0
3	Farshid Tabrizi	Other World Computing, Inc.	9	0	1
4	Hiroshi Noda	Canon, Inc.	10	0	0
5	Kenichi Satori	Nextorage Corporation	10	0	0
6	Hiroshi Machida	Sony Corporation	10	0	0
7	Edward Hsieh	SiliconMotion, Inc.	9	0	1
8	Fabian Ebenhoch	Angelbird Technologies GmbH	8	0	2
9	Sharlene Chin	Western Digital Technologies, Inc.	10	0	0
10	Hiro Ino	CompactFlash Association	N/A	N/A	N/A

- b. 2023 CFA Officer Appointments and 2023 Organization Change
 - i. New Officer appointments were reviewed:

President: Hiro Ino CompactFlash Association
Treasurer: Sharlene Chin Western Digital Technologies, Inc.
Secretary: Wes Brewer ProGrade Digital, Inc.

- ii. Committees were eliminated and activities were rolled into Work Groups for efficiency.
- iii. Workgroup and Chairperson Appointments
 - 1. The new organization approved by the Board of Directors was reviewed, and each workgroup's charter was explained. The appointed chairpersons were presented. [\(Refer to presentation\)](#)
 - 2. Strategy Workgroup (newly proposed)
 - a. A majority of non-Board-Director members expressed a desire to see this workgroup formed as they see CFA leading into next generation storage – such as Type A. The feedback will be taken into consideration at the next Board meeting.

c. 2022 CFA Membership Status

- i. Membership status reviewed [\(Refer to presentation\)](#):

Total Member Companies:	78 (plus 7 in penalty box)
New Member Companies:	7
Upgraded to Executive Member:	2
Members Left:	2

- ii. Some delinquent members have been deactivated and Hiro is trying to establish their intentions.
- iii. Some companies that are producing CFA-based cards but are not using the trademarks appear to be exempt from joining CFA at this time.
- iv. Some China-based companies are non-responsive to our inquiries and CFA needs to further discuss what we will do in these situations.

d. CFA License and Sublicense Agreement Review

- i. Hiro reviewed the CFA License and Sublicense Agreement:
 - 1. Hiro reviewed Section 6: Certification of Specification, asking if the current process is working for CFexpress.

- a. Frank Chen from Exascend noted that compliance of cards is a problem in China due to some Asian manufacturers producing CFexpress Type B cards based on generic M.2, 2230 modules with the user experience being sub-par or failing in cameras.
 - b. Additionally, Frank stated that card reader designs should be certified because some products are damaging CFexpress cards due to poor design.
 - 2. Hiro reviewed Section 7: Trademark Quality Standards
 - a. Today we aren't enforcing this guideline. New messaging will be sent to the membership to raise awareness of the [CFA Logo Usage Guidelines](#).
 - 3. Hiro reviewed Section 9: Cooperation and Protection
 - a. Members are encouraged to report violations to the CFA. The CFA will be adding more budget for legal enforcement in this regard in 2023. New messaging will be sent to the members to raise awareness of this clause.
- e. New Communication Platform for CFA Members and Workgroups
 - i. Hiro reviewed the status of migration to Basecamp for Workgroup communication. Membership management will continue to be maintained on the CFA website. Accordingly, Workgroup chairs will have to administer their members – including adding members to Basecamp when new members join their respective Workgroup on the CFA website.
 - ii. CFA will eventually migrate all CFA members to Basecamp. It is anticipated that we will lose communication with some of the members during this process due to some members not accepting the invitation. After discussion, it was agreed that members would once again be notified about Basecamp and that they need to take action to be active in future communication.
- f. Launch of VPG Profile Certified Product Database
 - i. CFA requires certification of VPG Profile 4.0 compliance. CFA is working on creating a web tool to streamline this process (currently in alpha stage). Also, per the current [VPG Profile Certification Policy](#), the certified product will be listed in a database as VPG compliant on the public portion of the CFA website.
 - ii. A question was raised on the timing of a certified product being made public on the database. Hiro reviewed the “date to be listed” portion of the form to

prevent a product from being listed before public announcement by the applying company.

- iii. Non-passing submissions will not be made public.
- iv. The new application form will be available in Q1'23 on the website.

7) CFexpress Technical Workgroup (Presented by Satori-san, Workgroup Chair)

- a. CFexpress 3.0 Performance Target (considerations for Gen 4)
 - i. A performance table was shown for each generation of Gen 3 and Gen 4 relative to M.2 performance. ([Refer to presentation](#))
- b. Power Table for Version 3.0 (PS0, PS1 and PS2)
 - i. [Refer to presentation](#)
- c. HCTM (host controller thermal management) Support
 - i. [Refer to presentation](#)
- d. Operating Temperature Definition
 - i. All card operating temperatures will be defined by Tc from specification version 3.0. CFexpress 3.0 will add 2 °C for temp tolerance: Tc -12 °C to 72 °C for Type A, Type B, and Type C.
 - ii. Host thermal requirements have been removed from the specification.
- e. CFexpress 3.0 Testing
 - i. It is expected that current (PCIe Gen 3) (8GT/s) fixtures for Host and Card can be reused for PCIe Gen 4 (16GT/s). This is currently being verified by GRL.
- f. Specification Development Status and Release Schedule
 - i. [Refer to presentation](#)

8) VPG 4.0 Profile Technical Workgroup (Presented by Noda-san, Workgroup Chair)

- a. Next Generation VPG Profile
 - i. Next Generation VPG Profiles
 - 1. VPG800: 800MB/sec sustained
 - 2. VPG1600: 1,600MB/sec sustained
 - 3. Intermediate performance levels can be added based on specific applications (such as 1,000MB/sec and 2,000MB/sec for cinema cameras).
- b. Reduction of Support on PCIe Host/Card Combinations
 - i. [Refer to presentation](#)
- c. Making FormatNVM command Mandatory
 - i. [Refer to presentation](#). Frank Chen from Exascend suggested that for VPG Profile, FormatNVM as well as all parameters such as no Secure Erase and no Trim also be defined as mandatory.

- ii. VPG state shall go to **Normal State** with this command (refer to state diagram).
 - iii. An “Abnormal Power OFF” transition path was created from VPG Suspend State to Normal Power Off State.
 - iv. It was requested that the “Abnormal Power OFF” state be defined in the specification.
- d. Proposal and On-Going Discussions Regarding feasibility with TLC NAND
 - i. Revise AU/RU Size and GW
 - 1. Tentatively decided as : AU=(128 to 1GB) and RU=8MB
 - ii. Writing Procedure for Performance Guarantee
 - 1. Refer to presentation
- e. Subjects to be Discussed
 - i. Refer to presentation
- f. Next Generation VPG Test Specification
 - i. Revision of the VPG Profile test specification will occur after the VPG Profile specification draft has been fixed.
 - ii. New test condition will be to format the card first via NVMFormat to allow more relaxation for TLC designs. To be discussed further in VPG Profile Workgroup meeting.
 - iii. How much data will be written for each stage of testing – a multiple of card size? To be discussed further in VPG Profile Workgroup meeting.
- g. Next Generation VPG Profile Compliance Tester Status
 - i. PCIe Gen 4 tester candidate: Hirota Smart Tester Gen4
 - 1. The previous generation tester failed to support PCIe Gen4 signal integrity requirements.
 - 2. Hirota indicated resource limitations to develop a new tester.
 - ii. Hiro suggested that this as a concern for CFA and should consider a backup plan. Frank Chen from Exascend suggested there are alternatives to Hirota.
 - iii. It was also clarified that VPG800 can be tested with the current PCIe Gen 3 tester although the test script needs to be updated. A PCIe Gen 4 tester is required for VPG1600.
- h. CFA VPG Profile Test Fixtures
 - i. Whether the current tester adapter board can be reused for PCIe Gen4 testing will be confirmed according to the schedule below.
- i. Milestones
 - i. Refer to presentation
- j. Discussion on VPG Profile backward compatibility occurred. The new VPG Profile (v5.0) will not be backward compatible to VPG Profile v4.0 (VPG400 and VPG800). It was proposed that VPG200 and VPG400 be supported with the new scheme albeit being incompatible with VPG Profile v4.0. This will be discussed in the Marketing Workgroup to be finalized.

9) Meeting was adjourned for Day 1 at 5:15PM.

November 17, 2022 (HST)

CFA General Meeting Minutes Day 2

- 1) Hiro called the meeting to order at 8:56am (HST) and reviewed the agenda for the day.
- 2) **VPG 4.0 Profile Technical Workgroup Continued (Presented by Noda-san, Workgroup Chair)**
 - a. Proposal for VPG 4.0 GW (Guaranteed Window) (Presented by Noda-san@Canon)
 - i. Refer to presentation
 - ii. Some concern was raised from the card manufacturers that the AU size should be larger than proposed. Noda-san will study and revise AU sizes (min 2GW – max. 16GW) per the feedback. Example 8GB@VPG 800 and 16GB@VPG1600
 - iii. Noda-san pointed out that if a video clip is shot at less than 10sec, the use of NAND is not efficient but most clips are >10sec. Additionally, the worst-case use case for a camera is when a user shoots one still shot, removes the card, inserts the card again, shoots a video clip, removes the card, inserts the card again, and shoots a still shot – this is least efficient in this proposal but considered a non-standard corner case.
 - iv. It was mentioned that <1TB cards would not be feasible using TLC – requires pSLC
 - v. Recommendation from Frank Chen@Exascend is also to limit number of IO queues to 1.
 - vi. All host vendors to review the proposal and provide feedback at the next WG meeting.
 - b. Sony Feedback on Nextorage and Canon Proposals (Presented by Machida-san @Sony)
 - i. Refer to presentation
 - ii. Response to Nextorage proposal
 1. Performance guaranteed AUs do not increase with file deletion or quick format.
 - a. Sony agreed to re-work the proposal for formatting (possibly NVMformat or Trim) to alleviate concerns raised.
 2. Recordable space (free space) on PC and Camera would be different.
 - iii. Response to Canon proposal
 1. Sony counterproposed on the combination of PCIe and new VPG to be support
 - a. VPG800 to be supported by PCIe Gen 3 Type B and Type hosts.
 - b. VPG800 to be supported by PCIe Gen4 PS1 hosts (in addition to PS0 hosts).
 - c. VPG1600 NOT to be supported by PCIe Gen 3 Type B hosts.
 - i. Nextorage agreed to do some testing of VPG1600 card compatibility on VPG800 hosts and report back.

3) Product Compliance Workgroup (Presented by Noda-san and Hiro, President)

- a. No presentation material was shown but overview of the Charter was discussed.
- b. The idea of having a Plug-Fest (or Compatibility Lab) was discussed.
 - i. After some discussion, the consensus was that a Plug-Fest was not desired for the CFA due to the lack of comprehensive testing that can be accomplished by these types of events.
- c. Discussion on an example of a host violating the CFA spec – what happens?
 - i. Hiro responded that the issue should be raised to the Product Compliance Workgroup to address the issue with the host vendor.
 - ii. The charter for the WG was further clarified as a “window for members to raise interoperability issues with CFA as they occur”.

4) Marketing Workgroup (Presented by Hiro, Chairperson)

- a. Shimada-san from Sony had raised the issue of what the purpose of CFA is in Day 1?
 - i. To address this, Hiro reviewed the Mission and Vision Statements for CFA that has recently been created. (Refer to [Mission and Vision Statements on CFA website](#).) Not just a standards body but also a trade association – “grow the eco-system”.
 - ii. Shimada-san feels that the end-user view needs to be integrated into the Mission Statement. Farshid from OWC commented that the “royalty free” aspect of the CFA should also be expressed more strongly. Hiro will take the feedback into consideration for updating the Mission Statement.
- b. Hiro mentioned that there are no specific plans at the moment but a number of activities have been discussed with the BOD for consideration:
 - i. Targeted for Members
 - 1. Newsletters
 - 2. CFA Awards
 - 3. Market Research
 - ii. Targeted for the Public
 - 1. China CFA Awareness Campaign (for new member acquisition and to encourage trademark compliance in China)
 - 2. Member Product Database (CFA certified)
 - 3. New Standard Announcements (i.e., CFexpress 3.0)
 - 4. New Feature Announcements (i.e., VPG 800/1600)
 - 5. Messaging on incompatibility of VPG Profile 5.0 vs earlier versions.
- c. Hiro is actively looking for members to participate in the WG – particularly those from member company marketing organizations.
- d. CFexpress 3.0 Designators for consumers
 - i. Indicating 3.0 on the logo is an attempt to signal to end-users that the card can meet certain speed requirements and to show advancement of the CFexpress specification. This works for both card vendors and host vendors.

- ii. Some suggested that we match CFexpress' version to PCIe Gen 4 if we go forward (skipping CFexpress 3.0 and jumping to CFexpress 4.0) with consumer messaging of the new standard. This will be discussed at greater length in the next Marketing WG.
- e. Trademark registration of VPG800 and 1600 clapboard logos will be done in the near future.
 - i. Adding the power state to the VPG Profile was discussed. This is a complex discussion and possibly confusing to the consumer due to the introduction of many variations. The addition of power states to the clapboard design is very concerning to many members so we need to try and solve the issue on the technical side first.
- f. First Marketing Workgroup meeting will be called after Thanksgiving and before Christmas.

5) Licensing and Trademark Compliance Workgroup (Presented by Hiro, Chairperson)

- a. The charter of the newly formed workgroup was presented.
- b. Several topics on the current Licensing and Sublicensing Agreement are being discussed at the board level which may result in revising/updating the Agreement.

6) Closing remarks were made by Noda-san and Fujinawa-san

7) The General Member meeting was adjourned at 11:59am (HST)