Approved Meeting Minutes: IEEE 802.3 Ethernet for Automotive Imaging Sensors (ISAAC) Study Group
August 28, 2023
Teleconference

Prepared by George Zimmerman

IEEE 802.3 Ethernet for Automotive Imaging Sensors (ISAAC) Study Group meeting convened at 8:02 AM CDT, Wednesday, August 28, 2023, by Jon Lewis, IEEE 802.3 Ethernet for Automotive Imaging Sensors (ISAAC) Study Group Chair.

Attendance is listed in Appendix A

ADMINISTRATIVE MATTERS
Presentation: agenda_ISAAC_1_082823.pdf
Presenter: Jon Lewis, Chair.

The Chair reviewed the agenda. Mr. Lewis turned to presentation agenda_ISAAC_1_082823.pdf and reviewed the schedule of presentations for the meeting.

Motion #1:   Approve the agenda from agenda_ISAAC_1_082823.pdf

Approved by unanimous consent

Motion #2: Approve the revised minutes from the August 16 meeting, posted at https://www.ieee802.org/3/ISAAC/public/081623/Unconfirmed_minutes_ISAAC_081623a.pdf
Approved by unanimous consent

The Chair then resumed the review of presentation agenda_ISAAC_1_082823.pdf :

- Mr. Lewis noted that there should be no recording or photography without permission.
- Mr. Lewis asked if anyone was attending from the press including those who would run a public blog on this meeting – none responded.

Mr. Lewis then continued review of the presentation, Big Ticket items for this meeting, to develop PAR, 5 Criteria, and Objectives for ISAAC.

Mr. Lewis reviewed the goals for the meeting, access to the reflector and website, and ground rules.

IEEE Patent Policy, Mr. Lewis read aloud the patent policy for study groups from agenda_ISAAC_1_082823.pdf, page entitled "Guidelines for IEEE-SA Meetings". (08:07 CDT)

Mr. Lewis asked if anyone had not seen the IEEE-SA copyright policy slide. None responded.

Mr. Lewis asked if anyone had not seen the IEEE-SA participant behavior policy slide. None responded.

Mr. Lewis asked if anyone had not seen the IEEE-SA participation policy slides on "individual process". None responded. Mr. Lewis asked if anyone objected to the individual process and if so to leave the meeting. There were no participants that left the meeting.

Mr. Lewis reviewed the standards development process for IEEE and where this study group is in the process.

Mr. Lewis reviewed the WG motion from the July plenary meeting of the 802.3 WG to establish the Study Group.

LIAISONS
The Chair moved to liaisons and noted that there were no liaisons for the Study Group at this time.

Attendance, Mr. Lewis advised the group of the IEEE meeting attendance tool and procedures.

PRESENTATIONS
The Chair then moved to the presentations for the meeting.

Title: What does the evolution to zonal architecture need?
URL:https://www.ieee802.org/3/ISAAC/public/082823/20230825_Matheus_GoingZonal_verA.pdf
Presenter: Kirsten Matheus, BMW

Discussion: The presenter explained her view for evolution to zonal architecture, and that cameras were excluded from the zones at the current time. She then explained several reasons for this – including timing, an evolutionary approach, and competitive technologies for the camera link. She described the needs and a possible evolutionary approach with several steps converting the camera from a SERDES to an ethernet link, and several options for steps a car manufacturer might take to migrating the camera to Ethernet. The presenter preferred a path that first substituted the PHY (in a non-ethernet mode) and then later the same phy bridge would, through a parameter change, support Ethernet.
Media used included both STP and coax, with a requirement for line powering.
As far as lengths, one of the evolutions initially ran the cameras outside the zones, and then some of the links would be zonal and others longer, therefore requiring 10-15m link lengths, whereas the ultimate zonal goal might require only 5m links.

Discussion – Questions were asked and answered. There was significant discussion about the evolutionary approach, including the protocol stacks used, and especially the extended link lengths beyond pure zonal needs.

Title: Key Goals for Camera Link Project
URL:https://www.ieee802.org/3/ISAAC/public/082823/jonsson_3ISAAC_01_082823.pdf
Presenter: Ragnar Jonsson, Marvell

Discussion: The presenter presented his views on some high level goals for .the project to create a competitive solution. These included (existing Ethenret) rates (2.5G/5G/10G), support for power delivery, support for coax & STP media, and compatibility with the Ethernet ecosystem, including the MAC.

Discussion – Questions were asked and answered. One participant suggested a latency specification might be needed as well, especially to define the upstream rate. Participants clarified that phy projects may specify the xMII to xMII latency, but 802.3 scope allows consideration of delays up through the MAC to the MAC client interface. Additional clarification suggested use of the Annex 4A full-duplex MAC.

Title: ISAAC: Duplex Operation Objective
URL:https://www.ieee802.org/3/ISAAC/public/082823/chini_dalmia_ISAAC_01_08282023.pdf
Presenter: Ahmad Chini, Broadcom & Kamal Dalmia, Avivalinks

Discussion: The presenters discussed concerns that a 'support full duplex' might preclude use of TDD techniques at the PHY and reviewed sections and functions in IEEE Std 802.3 regarding full duplex, including 1.1.2.2, and the operation of the GMII and XGMII. They discussed use of the carrier sense and MAC deferral process in EEE and proposed either removing the objective or two alternative wordings for an objective: one adding "with Carrier Sense Deferral", and one specifying "Half Duplex Operation with Collision Avoidance".

Discussion – Questions were asked and answered. Participants pointed out that it is the carrier sense SIGNAL which is used for the deferral process, and that existing projects had for at least the recent past, included the use of the carrier sense deferral signal (for EEE), so there was no need to change from the existing language, which had woked well. There was much discussion on this point, no conclusion was reached, and the discussion ended due to time, with the suggestion to continue on the reflector.

Title: Refinements on Key Text for PAR, CSD and Objective for ISAAC
URL:https://www.ieee802.org/3/ISAAC/public/082823/zimmerman_3ISAAC_01_082923.pdf
Presenter: George Zimmerman/CME Consulting, APL Gp, Cisco, Marvell, OnSemi, SenTekSe

Discussion: The presenter walked through minor modifications of text for the PAR Scope, Need, and Stakeholders section, the CSD responses, and some thoughts on objectives, pointing out where presentations might be needed to support progress.

There was no discussion due to lack of time.

The chair noted it was now 2 minutes after the scheduled stop time (10:02) asked if there was any objection in extending the meeting another 5 minutes to 10:07AM CDT. There was none.

A participant had been missed in discussion of the previous (Chini/Dalmia) presentation, and was allowed to continue discussion; however audio problems prevented the participant from finishing – he indicated he would continue on the reflector.

<u>FUTURE MEETINGS</u>
Mr. Lewis reviewed future meetings from the agenda presentation and announced the next meeting during the IEEE 802.3 Interim meeting series in Campinas, Brazil, on 14 September 2023.

The Chair indicated that the time had been exhausted and moved to adjournment.

Mr. Lewis adjourned the meeting at 10:07 AM CDT.

Appendix A: Attendees at the IEEE 802.3 Ethernet for Automotive Imaging Sensors (ISAAC) Study Group Meeting, August 28, 2023 (count 43(8:05)-45(8:15)-44 (8:30))

Name	Employer	Affiliation	IMAT	Zoom
Akin, Sami	Volkswagen AG	Volkswagen Ag	X	X
Alwishah, Abbas	Molex Incorporated	Molex Incorporated	X	X
Amrani, Yarden		Nvidia		X
Araki, Nobuyasu	Yazaki Corporation	Yazaki Corporation	X	X
Arndt, Christoph		Continental		X
Baggett, Tim		Microchip		X
Bierschenk, Jens		Robert Bosch GmbH		X
Boyer, Rich	Aptiv - Signal and Power Solutions	Aptiv Signal and Power Solutions	X	X
Chini, Ahmad		Broadcom Corporation	X	X
Cohen, Edo		Valens Semiconductor	X	X
Dalmia, Kamal		AVIVA Links	X	X
Estrakh, Daniel		Valens Semiconductor	X	X
Fellhauer, Felix	Robert Bosch GmbH	Robert Bosch GmbH	X	X
Ferretti, Vincent	Corning Incorporated	Corning Incorporated	X	X
Freeman, Zeph		Microchip Technology		X
Goto, Hideki	Toyota Motor Corporation	Toyota Motor Corporation	X	X
Haasz, Jodi	IEEE SA	IEEE SA		X
Hogenmueller, Thomas	Robert Bosch GmbH	Robert Bosch GmbH	X	X
Hopf, Daniel	Continental Automotive Technologies GmbH	Continental Automotive Technologies GmbH	X	X
Hoshino, Masayuki		Continental Automotive	X	X
HYAKUTAKE, YASUHIRO	Orbray Co., Ltd.	Orbray Co., Ltd.	X	X
Jin, Edward		Molex		X
Jones, Peter	Cisco Systems, Inc.	Cisco Systems, Inc.	X	X
Jonsson, Ragnar	Marvell Semiconductor, Inc.	Marvell	X	X
Kamiyama, Naoto		ROHM Co., Ltd.	X	X
Kershner, Kevin		Keysight		X
Kikuta, Tomohiro	Orbray Co., Ltd.	Orbray Co., Ltd.	X	X
Klaus-Wagenbrenner, Jochen		CARIAD		X
Koeppendoerfer, Erwin	LEONI Kabel GmbH	LEONI	X	X

Name	Employer	Affiliation	IMAT	Zoom
Lasry, Ariel	Qualcomm Technologies, Inc	Qualcomm Technologies, Inc	X	X
Law, David	Hewlett Packard Enterprise	Hewlett Packard Enterprise	X	X
Lefkin, Peter	MIPI Alliance	MIPI Alliance	X	X
Lewis, Jon	Dell Technologies	Dell Technologies	X	X
Liebl, Chistian		Conti		X
Lo, William	Marvell Semiconductor, Inc.	Axonne Inc.	X	X
Maguire, Valerie	Copperopolis	Copperopolis	X	X
Matheus, Kirsten	BMW Group	BMW Group	X	X
Mcclellan, Brett	Marvell Semiconductor, Inc.	Marvell Semiconductor, Inc.	X	X
Nagiub, Mena		Valeo		X
Neulinger, Christian	MD Elektronik	MD Elektronik	X	X
NIIHARA, YOSHIHIRO	Fujikura Ltd.	Fujikura Ltd.	X	X
Pan, Dongcheng		Huawei		X
Pandey, Sujan	Huawei Technologies (Netherlands) B.V.	Huawei Technologies (Netherlands) B.V.	X	X
Pardo, Carlos	Knowledge Development for POF SL	KDPOF	X	X
Perez De Aranda Alonso, Ruben	Knowledge Development for POF SL	KDPOF	X	X
Razavi, Alireza	Marvell	Marvell	X	X
Ringel, Haim	General Motors Company	General Motors Company	X	X
Sedarat, Hossein	Ethernovia	Ethernovia	X	X
Steyer-Ege, Janik	Robert Bosch GmbH	Robert Bosch GmbH	X	X
TAKEUCHI, JUNICHI	JAE Electronics, Inc	JAE Electronics, Inc.	X	X
TAZEBAY, MEHMET	Broadcom Corporation	Broadcom Corporation	X	X
Geoff Thompson	GraCaSI	GraCaSI		X
Turner, Max	Ethernovia	Ethernovia	X	X
Wienckowski, Natalie	None - Self-funded	General Motors Company	X	X
Zhang, Sen		Huawei		X
Zhang, Tingting	Huawei Technologies Co., Ltd	Huawei Technologies Co., Ltd	X	X
Zimmerman, George	CME Consulting	CME Consulting/APL Group, Cisco, Marvell, OnSemi, SenTekSe LLC	X	X