

Observations on the State of Consensus in the ISAAC Study Group

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What is a “Study Group” – Our Purpose

- It is NOT to “study a technical problem” in the general sense
- In the rules they are called “PAR Study Groups”
 - Study whether a Project Authorization Request (PAR) should be submitted
- IEEE 802 rules put additional requirements on Study Groups to produce “Criteria for Standards Development”
 - Also called CSDs or “5 Criteria”
- Study Groups in 802.3 are constrained in scope by the forming motion and the context of the “Call for Interest” presentation

THE PURPOSE IS TO GET CONSENSUS ON A PAR & CSD DOCUMENTS

The PAR defines the bounds of what we CAN discuss, the CSDs justify it

Objectives define what we COMMIT to do, and are a subset of the PAR – these can wait

THE SHORTEST PATH IS USUALLY TO CONCENTRATE ON THE PAR & CSDs

State of the Study Group

Study Groups can only submit PARs for approval at plenary meetings

- The November submittal opportunity has been missed
- March 2024 is the next opportunity
- After that, there is one more chance – July 2024

Study Groups exist from plenary to plenary

- It will be renewed at the November 2023 plenary (that is nearly automatic)
- Renewal at the March 2024 plenary will depend on progress.
- Study group cannot be renewed after that – the project will die

Time to change our approach

Since July, we focused on the PAR & CSD responses, almost exclusively

- We did NOT have consensus on these high-level items, seeming to be misaligned on details

We have missed the first opportunity to submit, we have time

PERHAPS WE CAN FIND OBJECTIVES WITH SOME CONSENSUS

Issues in the ISAAC Study Group

POINTS OF CONSENSUS

Objectives for:

- Support rates from the camera of 2.5, 5, and 10 Gb/s
- Support of both Coax & STP (w/shared transceiver spec)
- Support powering over the media (both types)
- Support rates to the camera of up to 100 Mb/s
- Support for some reach 10m or more

ASA interoperability should be at least discussed as an option

Agreement that we need SOMETHING lower cost & lower power than the existing symmetric PHYs using the as-defined EEE modes

POINTS OF DISAGREEMENT

Support 25 Gb/s from the camera?

- Strong support, but no consensus

Support rates of 1 Gb/s? (in either direction)

Should interoperability with ASA-MLE be required?

- Some have voiced this...

PERHAPS WITHIN REACH OF CONSENSUS: Exactly what reaches to support - 10m, 11m, 15m?

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POINTS OF DISAGREEMENT

Support 25 Gb/s from the camera?

- Strong support, but no consensus
- (Support 25G if and only if it does not add significantly to the complexity of the standard) ← Do we have consensus on this?

Support rates of 1 Gb/s? (in either direction)

- (Support 1G if and only if it does not add significantly to the complexity of the standard) ← Do we have consensus on this?

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- Some have voiced this...

What are the dynamics?

ISAAC covers a number of technical areas –

- Automotive design, imaging technology evolution, PHY design, cabling, ...
- No one I know is expert on all of these – we need input from many individuals

There is a lot of distrust, some driven by the factions...

- We need to work hard to bring people along with data, not just statements of opinion

There are also a lot of people committed to the process

- Expect some individuals to reach out – try to build trust
- Understand what part of the problem each person knows best
- Synthesize solutions & develop compromises
- Use the process to develop project documentation that allows the technical solutions to be investigated

What to do...

Expect progress on the PAR & CSDs to be slow.

- We have until February to get consensus on something to be submitted in March

Work the process

Let's try for some objectives...

Generic Ethernet & Automotive Ethernet

Preserve the IEEE 802.3/Ethernet frame format at the MAC client service interface

Preserve minimum and maximum frame size of the current IEEE 802.3 standard

Define optional startup procedure which enables the time from `power_on=FALSE` to a state capable of transmitting and receiving valid data to be less than 100 ms

Do not preclude meeting FCC and CISPR EMC requirements.

Support operation in automotive environments (e.g., EMC, temperature)

Support optional auto-negotiation

Specific to ISAAC: Power in more than one way

We seem to have consensus to reflect both Power-over-Coax and Power over Twisted Pair media – this may change the form of a power objective:

Do not preclude power delivery over balanced and unbalanced link segments

Specific to ISAAC: An Asymmetric RS

Wording should not imply management, coordination or any techniques

- Previously suggested wording said “coordinate”...

General consensus we need something optimized for asymmetry

Suggest:

Define a reconciliation sublayer optimized for asymmetric applications

What's left? – The link segment & PHY: Reach & Rates

At least one per speed

- Could be 2 per speed – one per medium

Needs to call out the speed, the medium, and the reach...

There are other presentations working consensus on this...

Discussion?

Thank you
