

IEEE 1722b GPIO Proposal

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Previous GPIO discussions (1/3)

- 1st Ad Hoc meeting August 30th 2022
 - General understanding that a minimum GPIO specification is needed in IEEE 1722 to ensure some implementation interoperability.
 - First presentation made by Mr. Ortiz ([1722b GPIO contrib ortiz v10.pdf](#)) was discussed at length.
- 2nd Ad Hoc meeting September 9th 2022
 - Updated presentation made by Mr. Ortiz with the changes suggested in the previous meeting ([1722b GPIO contrib ortiz v20.pdf](#)).
- Mr. Ortiz and Mr. Torres generated Annex L of the IEEE 1722 with the proposed specification including previous inputs from the participants.
- Mr. Lo suggested some simplifications and highlighted points for discussion over Annex L, including some text that should be normative to ensure interoperability ([IEEE Std 1722b-ForGPIO WL markup.doc](#))

Previous GPIO discussions (2/3)

- 3rd Ad Hoc meeting January 12th 2023
 - Discussion on [IEEE Std 1722b-ForGPIO WL markup.doc](#)
 - Mr. Pannell and other participant raised several concerns about the presented document:
 - Misuse of presentation time as specified in IEEE 1722 and IEEE 802.1AS
 - The algorithm for generating the acquisition time from the presentation time may be against the OSI layer division between Presentation and Application layers.
 - The encapsulation of GPIO signals into ACF_SENSOR messages should be informative, not normative

Previous GPIO discussions (3/3)

- Mr. Ortiz and Mr. Torres generated a new version of Annex L addressing the concerns raised, and distributed [IEEE Std 1722b-workingCopy - C9v02-ForGPIO v2 1.doc](#) through the IEEE 1722 reflector on February 20th.
 - Suggested normative changes in 9.4.10.6 and 9.4.10.7 removed.
 - Option of using ACF_SENSOR_BRIEF for GPIO signal encapsulation removed.
 - GPIO_time_offset configuration parameter added (as used in IEEE 1722.1)
 - GPIO identification uses only GPIO_sensor_group, and not the AVTP stream_id field
 - Decapsulation generation of message timestamps removed
 - Combination of GPIO real forward channel and ACK channel (L.2.3) removed
 - Exception handling proposal (L.2.4) removed
- 4rd Ad Hoc meeting February 23rd 2023
 - Discussion on [IEEE Std 1722b-workingCopy - C9v02-ForGPIO v2 1.doc](#)
 - Agreed to propose [IEEE Std 1722b-workingCopy - C9v02-ForGPIO v2 2.doc](#) for discussion inside IEEE 1722b Working Group.

Main directives behind proposal

- Increase GPIO implementations interoperability
- Keep the specification as simpler as possible
- Informative annex – no new shall statements in IEEE 1722

GPIO proposal in a nutshell

- Support of real and virtual talker and listener
 - “Real” here means associated to physical GPIO pins
 - Allows generation and consumption of GPIO by internal processes

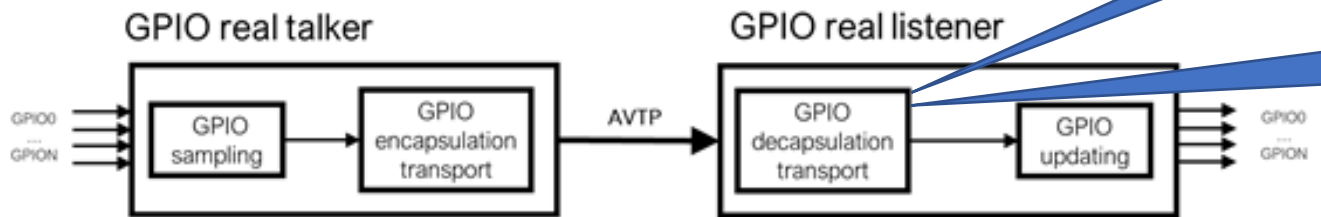


Figure L.1—Example of GPIO real forward channel

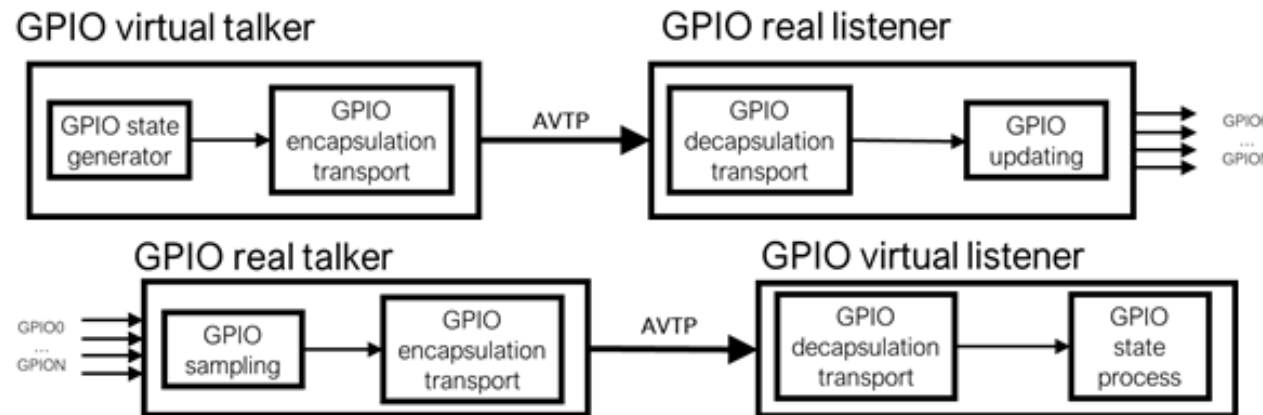


Figure L.2—Examples of GPIO virtual forward channel

Encapsulation using ACF_SENSOR messages in the AVTPDU

Updating time of the output signals using message_timestamp and GPIO_time_offset (fixed)

Enables grouping of N GPIO signals in a GPIO_sensor_group

Next steps

- Propose to IEEE 1722 Working Group to consider [IEEE Std 1722b-workingCopy - C9v02-ForGPIO v2 2.doc](#) as a new IEEE 1722b informative annex for discussion.

Thanks!