Ethernet Support for the IEEE P802.1AS Time Synchronization Protocol

Draft PAR

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Contribution from 802.1 AVB TG

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Title (4)

Draft: IEEE Standard for Local and Metropolitan Area Networks – <<need to decide on rest of title>>

PAR Scope (13)

- This standard specifies an interface to a higher layer that provides notification of each start-of-frame event for each frame that is transmitted or received.
- PHY TX delay, PHY RX delay, and their accuracies are available via a MIB (no need for PHY changes).
- No required changes to the xMII

NOTE: From IEEE P802.1AS D6.0, clause 8.4.3

> All event messages are time stamped on egress and ingress. The time stamp shall be the time, relative to the LocalClock entity (see 10.1) at which the message time stamp point passes the reference plane marking the boundary between the time-aware system and the network media.
>
> NOTE 1 - If an implementation generates event message time stamps using a point other than the message time stamp point, then the generated time stamps should be appropriately corrected by the time interval between the actual time of detection and the time the message time stamp point passed the reference plane. Failure to make these corrections will result in a time offset between time-aware systems.

PAR Scope (13)

Is the completion of this document contingent upon the completion of another document?

- This standard is not contingent on the completion of any other documents

PAR Purpose (14)

- The interface specified in this standard will be referenced by IEEE P802.1AS to obtain information it needs to transport timing over a full-duplex, IEEE 802.3 link

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PAR Reason (15)

- At present, IEEE 802.3 does not specify a time-stamp interface
- One approved IEEE standard and one IEEE standard under development depend on the ability to time stamp the sending and receiving of a frame
  - IEEE Std 1588™ – 2008
  - IEEE P802.1AS
- It would be desirable for these standards to specify time stamping in a way that is standardized
- More generally, it will be desirable any future standards that depend on the ability to time stamp the sending and receiving of a frame to specify this in a standardized way