

GraCaSI

Slightly Beyond
RPTGE

Tuesday, July 17, 2012

Geoff Thompson
GraCaSI S.A.

GraCaSI

STANDARDS ADVISORS

Geoffrey O. Thompson

PRINCIPAL

**158 PASEO COURT
MOUNTAIN VIEW, CA 94043-5286
USA**

PHONE: +1.540.227.0059

E-MAIL: <THOMPSON@IEEE.ORG>

Beyond RTPGE

GraCaSI

This discussion is about topics deliberately
OUT OF SCOPE for this project

(That could change when PAR drafted)

- Supplying Power over the same pairs
(Whether by cl. 33 PoE or other)
- Energy Efficient Version
- Wye-PHY vs. current Eye-PHY

Beyond & Out of Scope

GraCaSI

Some limited discussion MAY be appropriate.

Inclusion in OBJECTIVES in a limited way:

- Has precedent (P802.3af, Obj #1)
“provide power to ... and **consider**
powering 1000BASE-T

To make sure we don't preclude feature addition in a later project.

Limited Discussion Item #1

GraCaSI

Supplying Power over the same pairs
(Whether by cl. 33 PoE or other)

- Already been discussion & Ad Hoc
- Clearly power is wanted by Automotive
- Not clear that it needs to be pure Cl. 33
- Might want to be quite different
- One pair RTPGE would preclude Cl.33
- Pwr could be supplied in one pair RTPGE
 - Somewhat different esp. wrt balance

Limited Discussion Item #2

GraCaSI

Energy Efficient Version

- Easier to put in as part of project
- Can be disruptive to Synchronous and Time Sensitive Systems
- EE Mode causes start-up delay and Start-up delay variation
(Can be problem in process control env.)
- May not be needed in Wye-PHY env.
(See next slides)

Limited Discussion Item #3

GraCaSI

Wye-PHY vs. current Eye-PHY

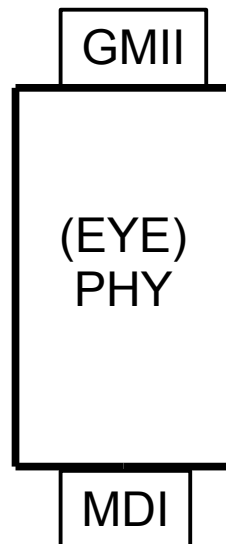
- All current 802.3 PHYs are of an Eye-PHY configuration.
- 802.9 (Broadband ISDN) did a PHY Standard as a Wye-PHY (Std.802.9a-1995)
- A Wye-PHY could have BIG advantages for Automotive environments.
(That is another discussion, OOS here)
- Wye-PHY could heavily assist EEE
(i.e. preclude need for refresh cycle)

Limited Discussion Item #3

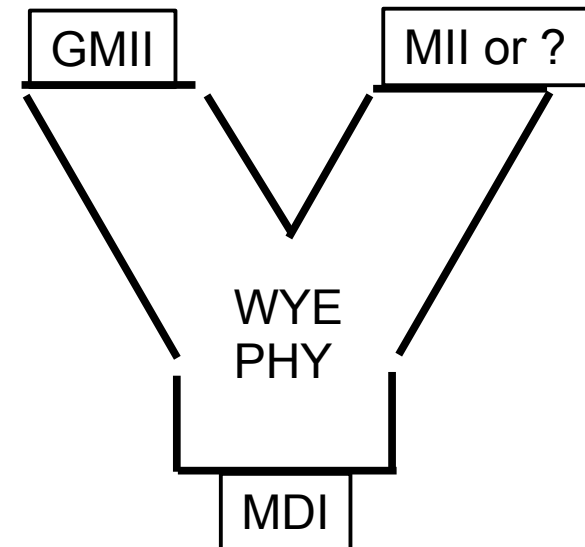
GraCaSI

What is meant by Wye-PHY?

Conventional (Eye)
PHY has one port up
(to the MAC) and one
port down to the MDI



Wye-PHY has two ports up
(to upper layer controllers)
and one port down to the MDI



There is a hardware
mux (fixed ratio or ?)
In the PHY

Limited Discussion Item #3

GraCaSI

Wye-PHY vs. current Eye-PHY

What would be required to allow development of a WYE-PHY RTPGE PHY at a later date?

- Not much
- How much depends on multiplexer complexity
- Simple fixed ratio MUX takes least
- A few extra codes in Idle Mode to Sync the MUXes between ends.

Takeaway from this presentation:

- (Requested) Proposed Objective:

Select line code that allows for future additional functionality

One more thing:

Homework Item for whole group

- Read 802.3 Clause 32 (100BASE-T2)
- Seems like just like what we may want (at 100 M instead of 1 G)
- 100BASE-T2 clock is 25 MHz
- Gig version @ 250 MHz = reasonable
- It was developed for bad balance env. So it has good noise immunity

GraCaSI

STANDARDS ADVISORS

Geoffrey O. Thompson

PRINCIPAL

**158 PASEO COURT
MOUNTAIN VIEW, CA 94043-5286
USA**

PHONE: +1.540.227.0059

E-MAIL: <THOMPSON@IEEE.ORG>