

1394b PHY-Link Taskforce



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1394b PHY-Link Taskforce

- **Mandate:** To define a PHY-Link electrical/mechanical and timing spec which:
 - Allows for separate PHY-Link chip implementations.
 - Supports projected FireWire speeds thru 3200 MBaud
 - Is inexpensive, but reliable and easily reproduced.

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■ Issue 1

3200 Mbits/Sec would seemingly require either a 32-bit wide interface, or one that ran at 200 MHz.

Can an interface be defined which doesn't require large pincounts and/or unmanageable frequencies?

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■ Issue 2 - Clocks

- Should the clock source remain the PHY?
 - | Should it be in the link?
 - | Should data be self clocking?
 - | Should data be double clocking (both edges) in beta mode?
 - | Will a PLL be required in the link, either to extract a data clock, or to synthesize higher interface frequencies (or both) ?

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■ Issue 3 - Bus Mastering

- Can the PHY remain the bus controller?"
- If so, will the link have time to react, given the rate of data reception and the amount of decoding and logic branching required?

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■ Issue 4 - PC Board Layout

- Will higher frequencies require a pinout specification ala RAMBus, in order to control transmission line effects, crosstalk and the like?

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■ Issue 5 - Backward Compatibility

- How can current design and bus specification compatibility be retained in light of possible fundamental changes in bus mastering, clocking and protocols?

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■ Issue 6

- Is there a simpler solution which will allow 800Mbaud operation in the nearterm? (Again, by double-clocking?)
- Is it desirable/necessary to have different solutions for 800 and 1600/3200 Mbaud operation?

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- Taskforce will need to be interdisciplinary, requiring contributors skilled in:
 - FireWire architecture
 - PHY and Link design issues
 - clock generation
 - generic bus design, protocols, and architecture
 - transmission lines (possibly SPICE)

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- Work and schedule to be synchronized to 1394b committee schedule.
- Bulk of communications and 'meetings' via email (possibly net or video teleconferencing)
- Other meetings coordinated with 1394b as indicated/necessary.