Re: RS−485 arrangements

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- *From*: David Starr <mittersill@xxxxxxxxxxxxx>
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Steve wrote:

> "Richard Henry" <pomerado@xxxxxxxxxxx> wrote in message
> news:1190044006.664926.14450@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
>
> > I have long been familiar with RS−485 wired as a single differential pair connected to all the devices and termination at the both ends, however "end" may be defined. I have recently been looking into a 4−wire "full−duplex" implementation. However, it seems to be full−duplex only if there are only two devices attached. Otherwise, there appears to be a need to designate one device as the master (the device to whose receiver all the other drivers are connected) and the rest as slaves.
> >
> > Unless there is some clever arrangement of which I am ignorant. Any comments?
>
> Full duplex (FDX) RS 485 can be wired as point−to−point (typical use) or as point−to−multipoint (unusual but possible). If you use the point−to−multipoint configuration, you are correct that it looks effectively like the half duplex configuration, because you still need a master and slave(s) relationship. Replies from the various slaves have to be non−overlapping, and their output transceivers need to be controllable just like the 2 wire HDX configuration. So its hard to see any benefit to the extra wire pair in point−to−multipoint.
>
> A point−to−point FDX configuration is usually used when you need high throughput, or when you don't have access to the 485 transmitter enable signal. If you are sending command−reply type messages, FDX doesn't increase throughput because the two devices are alternating their messages anyway. Most FDX 485 configurations with which I am familiar are really FDX hardware with HDX software implementations.
>
> Steve

Basic rule for any kinda bus. Only ONE device can drive the bus at the same time. If two (or more) devices attempt to drive the same bus at the same time it's called a bus fight. The bus may go high or low or halfway

inbetween, depending upon the strength of the bus drivers doing the fighting. Does not matter what kinda bus, you cannot allow two bus drivers to drive at the same time. The only common solution to bus sharing is a strict master−slave arrangement. If other solutions exist they ain't common.

David Starr
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