Masato Minami said:

When performing FPD-Link III high-speed serial transfer from DS90UB949 to DS90UB948,
is bidirectional communication described in the data sheet 8.3.9 Back Channel Data Transfer essential for control? Or is it bidirectional? Is it possible to execute only DS90UB949 → DS90UB948 communication without communication
?

・(If the above two-way communication is required), please tell me the pins used for this communication.

This must have been a typo, Dout pins are I/O pins. FPD-Link devices have a bidirectional channel. The high-speed forward channel is composed of 35 bits of data containing RGB data, sync signals, I2C, GPIOs, and I2S audio transmitted from serializer to deserializer and The backward channel provides bidirectional communication between the display and host processor. The bidirectional control channel (BCC) is implemented through embedded signaling in the high-speed forward channel (serializer to deserializer), combined with lower speed signaling in the reverse channel (deserializer to serializer). Through this interface, the BCC provides a mechanism to bridge I2C transactions across the serial link from one I2C bus to another. The implementation allows for arbitration with other I2C-compatible masters at either side of the serial link.

Masato Minami said:

-The description of 8B10B cannot be found in the data sheet. Please attach the data sheet with the description. I have a data attachment sheet

Yes, DS90UB949A supports 8b/10b encoding - please see below.

7.3.2 Transition Minimized Differential Signaling

HDMI uses Transition Minimized Differential Signaling (TMDS) over four differential pairs (three TMDS channels and one TMDS clock) to transmit video and audio data. TMDS is widely used to transmit high-speed serial data. The technology incorporates a form of 8b/10b encoding, and the differential signaling allows the device to reduce electromagnetic interference (EMI) and achieve high skew tolerance.

Masato Minami said:

-For ACK, I2C SDA = L. For NACK, the I2C SDA is H. So, are the ACK and NACK signals superimposed on the FPD Link III? See Attachment .

Yes I2C communication is carried through the FPDLinkIII bidirectional channel. I2C communication is controlled through SDA (pin#14) and SCL (pin#15). The serial control bus consists of two signals: SCL and SDA. SCL is a Serial Bus Clock Input and SDA is the serial Bus Data Input / Output signal.