PCIe redriver

FR4 loss ~= 7.9dB/m/GHz;
31.6 dB/m @ 4GHz
JOB avg PCIe2 TX trace length ~= 51.0 mm
JOB connector to redriver trace length ~= 60.7 mm
for 111.7 mm loss = 3.53 dB
EQ[2:0] = 2'b010 gives 3.9 dB EQ @ 4 GHz
FG[1:0] = 2'b10 for −0.5 dB (aiming for 0dB)
SW1 = 1 for 1200 mVp−p swing

OCuLink e-fuses

ISET resistor value:
target current limit = 1.2 A (2x peak OCuLink pin current)
AP22615 datasheet, page 3, ISET pin description
I_{LIM} (A) = 6800 / R_{LIM} (Ohms)
1.2 A = 6800 / R_{LIM} Ohms
R_{LIM} = 6800 / 1.2 = 5666 Ohms ~= 5.6 kOhms
real current limit ~= 1.214 A

ISET resistor value:
target current limit = 0.6 A (peak OCuLink pin current)
AP22615 datasheet, page 3, ISET pin description
I_{LIM} (A) = 6800 / R_{LIM} (Ohms)
0.6 A = 6800 / R_{LIM} Ohms
R_{LIM} = 6800 / 0.6 = 11333 Ohms ~= 11.3 kOhms

JOB acts as a ROOT Device
REFCLK utilizes A12(+)/A13(−)

FR4 loss ~= 7.9dB/m/GHz;
31.6 dB/m @ 4GHz
OCuLink 1m cable loss ~= 6.0 dB @ 4.5 GHz
OCuLink connector to redriver trace length ~= 47.5 mm
for 47.5 mm loss = 1.5 dB
6.0 dB + 1.5 dB = 7.5 dB
EQ[2:0] = 6'b110 gives 7.8 dB EQ @ 4 GHz
FG[1:0] = 2'b10 for −0.5 dB (aiming for 0dB)
SW1 = 1 for 1200 mVp−p swing

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Logo N2 antmicro_logo
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Title: Jetson Orin Baseboard OCuLink Expansion

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