Details for a Lumi Nibble Control for the RHU Devices

Use ECL line for clock distribution \rightarrow ECL is busable, easy chaining possible Use ECL line for serial transfer of Lumi ID \rightarrow serial protocol at 115KBaud easy to implement and sufficient

Some facts:

1 orbit = 89,1us 1 Lumi Nibble = 2048 Orbits 1 Lumi Nibble = 182.5ms Lumi Nibble ID 32 Bit + Header + CRC = 60Bit Payload

Time to transfer 60Bit at 115KBaud = 0,5ms only within a 182.5ms Time Window

Features:

+ Lumi ID is transfered as absolute value → always synchronous with "hotplug" devices!
+ Lumi ID is easily decoded in hardware and associated with data in hardware (UART protocol)
+ Solution is Lumi Nibble Clock Jitter (up to 30us) and Data Jitter (up to 50ms) tolerant! → because DAQ is synchronous already via Orbit Trigger

