GLIB Modules & Functionalities

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This document describes how to interact with the GLIB modules.

Contents

OptoHybrid Forward

This module forwards all its requests to the OptoHybrids.

Addressing

Module ID	4
Address	0x4ZXYYYYY
	0b 0100 ZZZZ XXXX YYYY YYYY YYYY YYYY YYYY

Description

All the requests made to this module are forwarded to the OptoHybrid n°X of the GLIB. The Z parameter indicates which module on the OptoHybrid will handle the request (see *OptoHybrid Modules & Functionalities* for more information).

Tracking Data Readout

This module stores the tracking data coming from the OptoHybrids into a buffer and allows to readout the data through IPBus.

Addressing

Module ID 5
Address 0x50X0000Y
0b 0101 0000 XXXX 0000 0000 0000 0000 00YY

X register	Mode	Function
0	Read /write	*Data packet* A write operation will empty the FIFO
1	Read	*FIFO occupancy* Divide by 7 to compute the number of events
2	Read	*Is the FIFO full?*
3	Read	*Is the FIFO empty?*

Description

To read out data, the software must operate a FIFO read on the register. It then has to form the data packets by regrouping the 32-bits words. Writing to the register will empty the buffer which is recommended after flashing the firmware onto the GLIB or OptoHybrid.

One data packet is composed of 7x 32 bits which are formatted as follows, the highest word being read out first.

“1010” & BC[11:0] & “1100” & EC[7:0] & Flags[3:0]
“1110” & ChipID[11:0] & Strips[127:112]
Strips[111:80]
Strips[79:48]
Strips[47:16]
Strips[15:0] & CRC[15:0]
OptoHybrid BX[31:0]

Counters

This module holds all the counters of the GLIB. Writing to a given register will reset its value.

Addressing

Module ID 6
Address 0x6000000YY
0b 0110 0000 0000 0000 0000 0000 YYYY YYYY

Y register	Mode	Function
IPBus		
0 - 4	Read	*IPBus strobes* Order: OptoHybrid 0, OptoHybrid 1, Tracking data 0, Tracking data 1, Counters
5 - 9	Read	*IPBus acknowledgments*
T1 commands		
10 - 13	Read	*T1 from AMC13* Order: LV1A, Calpulse, Resync, BC0
GTX		
14 - 15	Read	*Tracking links error*
16 - 17	Read	*Trigger links error*
18 - 19	Read	*Data packets received*