

No	Features	Production FW v3.1
1	GBT/Reception of clock and TTC data	Yes
2	IPBus v2.7	Yes
3	CombinedTTC/Data to all FEX slots + ROD + OtherHUB	Yes
4	Readout Ctrl Data from ROD (spec 0.8)	Yes
5	ROD Automatic PowerUp Sequence	Yes
6	IBERT controlled via IPBus registers	Yes
7	EyeScan controlled via IPBus registers	Yes
8	FELIX Back-pressure	Yes
9	Privileged Readout bit	No
10	CRC mechanism (CombinedTTC/Data + ReadoutCtrl)	Yes
11	TTC Emulator (fixed)	Yes
12	Fixed latency (HUB in slots #1 and #2)	Yes

Additional notes:

- (1) Privileged Readout bit is grounded
- (2) GBT machinery can be reset via the IPBUS register (gt\_control\_array(0).reset\_master)
- (3) Design built with Vivado 2020.2 (but there is a magic trick for IPBUS)
- (4) IPBUS controlled update (update from Dave)
- (5) New register (counters) added to monitor the MGT resets. Modifications are made in two xml files: L1CaloHUB.xml and L1CaloHUB\_gt.xml
- (6) Feature added to bypass the deterministic latency for the ROD in slot #2
- (7) Update which might eliminate the occasional CRC errors