
Trigger system operating manual for HERD beam test 2021

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Abstract

1. Abstract

This document is an assemble reference for the interconnection between the trigger system and all the other sub-systems. How to connect the DAQ computer, the power supply to the trigger system are also included.

2. Trigger and distribution interface

2.1 overview

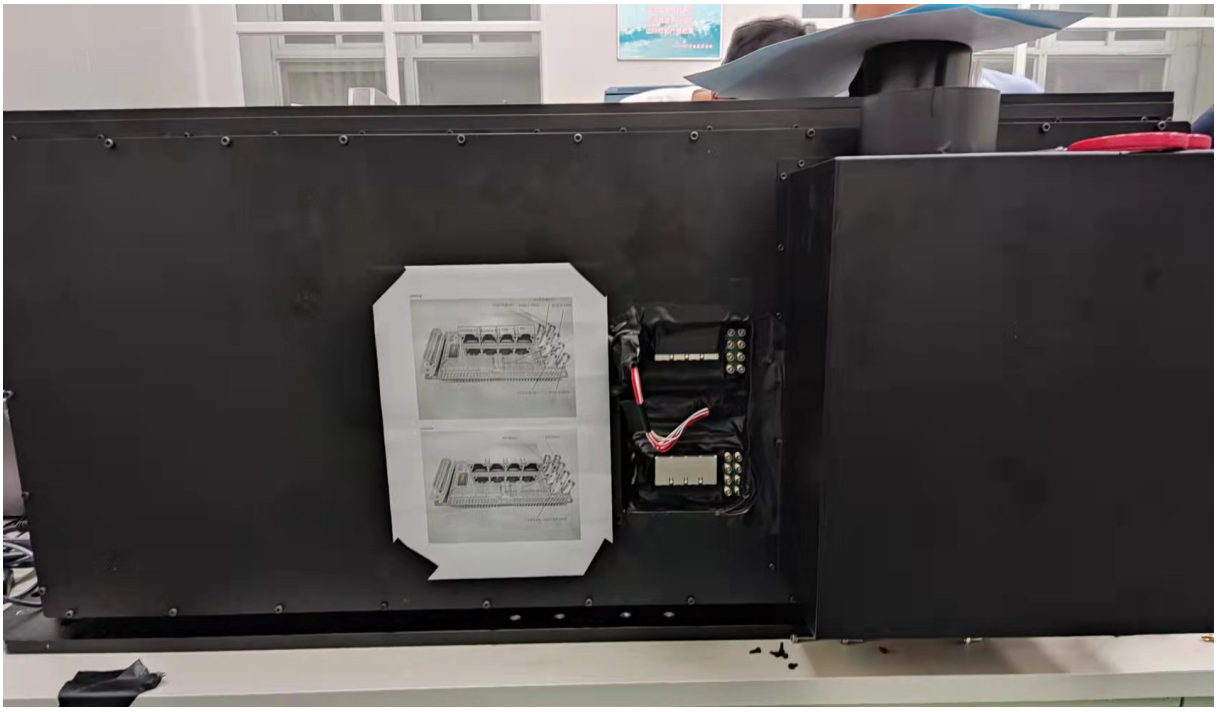

Figure 1. Trigger system interface

2.2 upper connectors

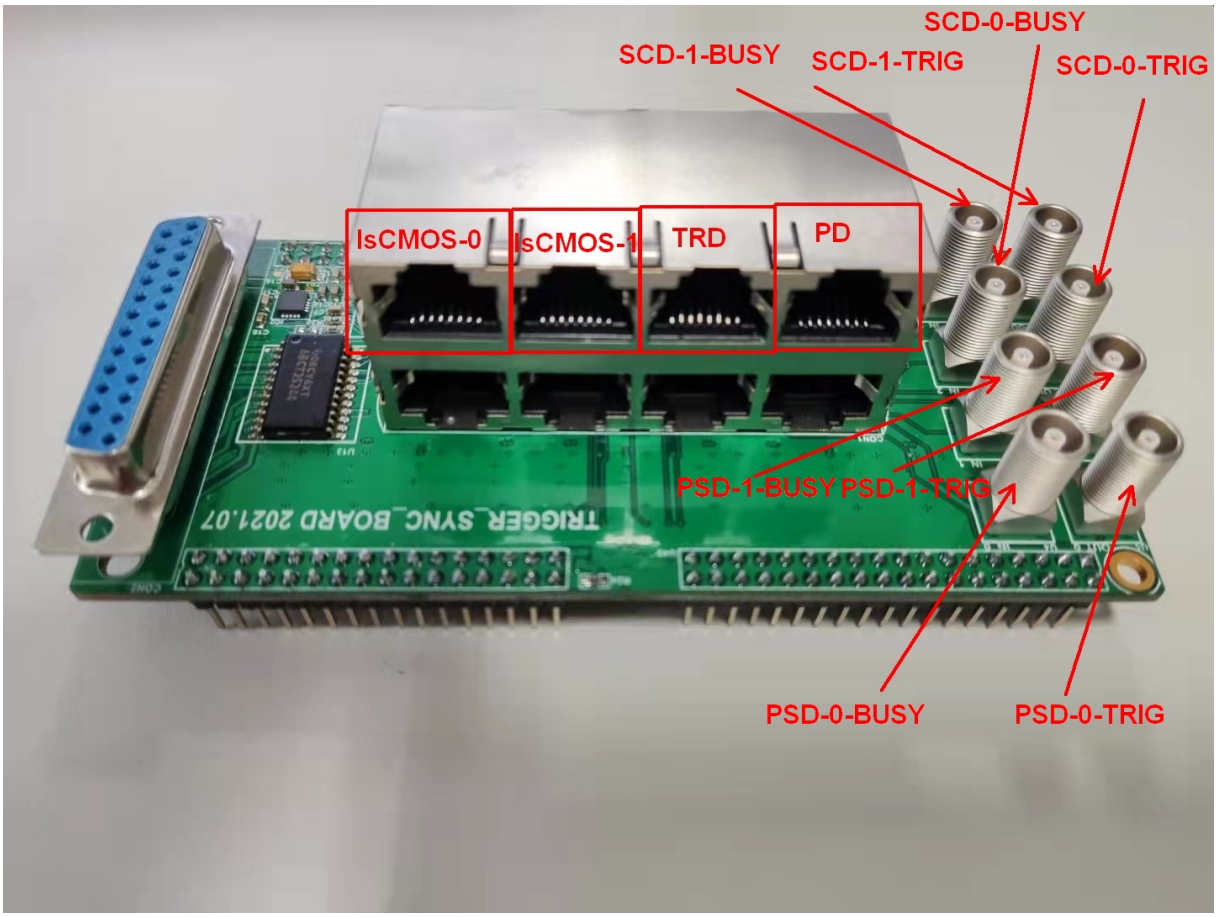

Figure 2. Upper connectors

2.3 lower connectors

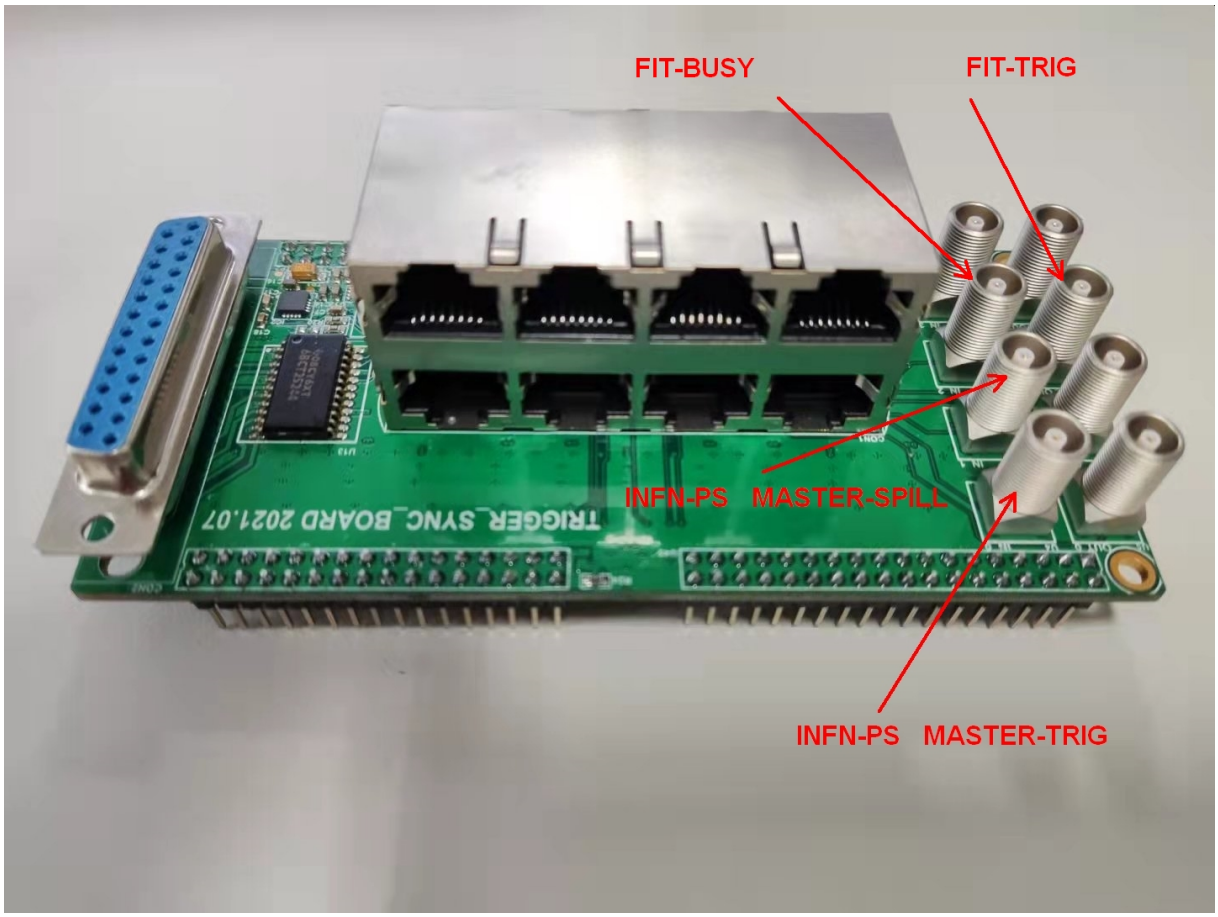

Figure 3. Lower connectors

Table 1. Sub-system interface

Signal	Type	Direction	Default value
INFN-PS MASTER-TRIG	LEMO/TTL/5V	input,	postive edge effective
INFN-PS MASTER-SPILL	LEMO/TTL/5V	input	High effective:beam ON
FIT-TRIG	LEMO/TTL/5V	output	postive edge effective
FIT-BUSY	LEMO/TTL/5V	input	High effective:busy
PSD-0-TRIG	LEMO/TTL/5V	output	postive edge effective
PSD-0-BUSY	LEMO/TTL/5V	input	High effective:busy
PSD-1-TRIG	LEMO/TTL/5V	output	postive edge effective
PSD-1-BUSY	LEMO/TTL/5V	input	High effective:busy
SCD-0-TRIG	LEMO/TTL/5V	output	postive edge effective

SCD-0-BUSY	LEMO/TTL/5V	input	High effective:busy
SCD-1-TRIG	LEMO/TTL/5V	output	postive edge effective
SCD-1-BUSY	LEMO/TTL/5V	input	High effective:busy
ISCMOS-0	DI2C	input/output	N/A
ISCMOS-0	DI2C	input/output	N/A
TRD	DI2C	input/output	N/A
PD	DI2C	input/output	N/A

Table 2. DI2C Sub-system cable

	Cable No.	Type and length
ISCMOS-0	Trig-101	CAT7 3m
ISCMOS-1	Trig-102	CAT7 3m
TRD	Trig-103	CAT7 10m
PD	Trig-109	CAT7 3m

2. Power, DAQ computer and trigger system

There are 3 connectors on the left side: AC power supply, USB 2.0 Type A, and RJ45

Figure 4. Trigger system interface

Table 3. Trigger system cable

	Cable No.
AC power supply	Trig-110
USB 2.0 type A	Trig-105
RJ45	Trig-104

Figure 5. Trigger system cable and power ON switch

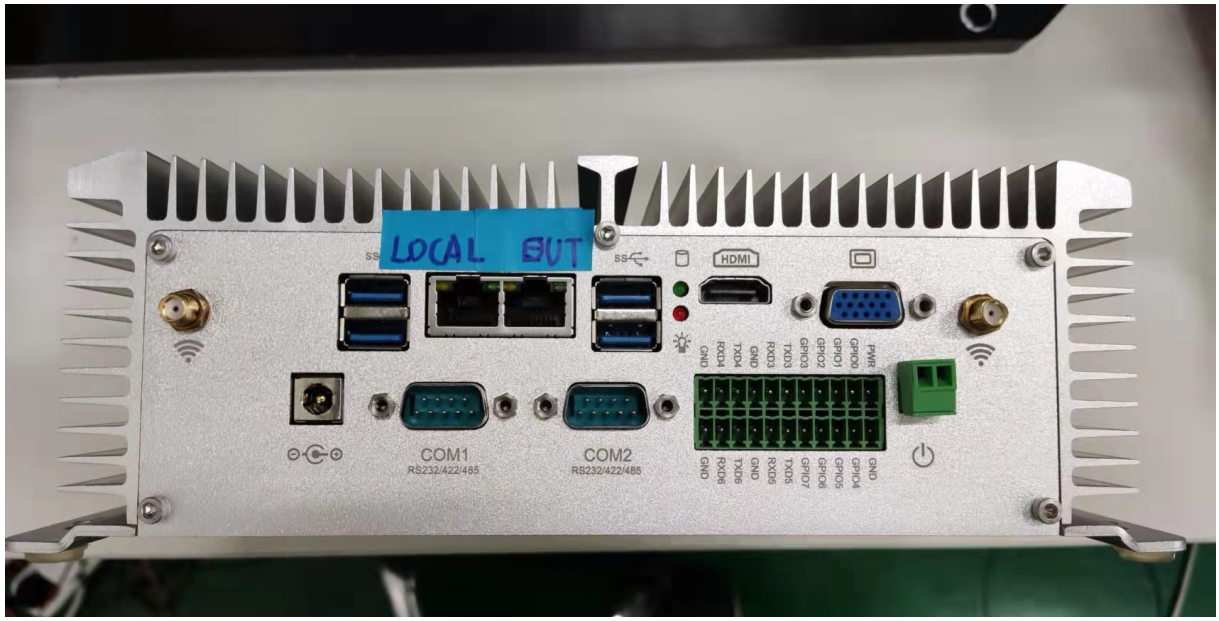

Figure 6. DAQ computer and the RJ45 should be connected to LOCAL port

Figure 7. DAQ computer and power ON button

Table 4. Trigger system DAQ computer cable

		Cable No.
12V DC	power supply of DAQ computer	Trig-108
LOCAL	Control and data transfer of trigger system	Trig-104
Any USB	Firmware update	Trig-105
OUT	To CERN switch/ remote control	Trig-106

3. Operating procedure

1 prepare the DAQ computer: 12V DC , local RJ45 to the trigger system, out RJ45 to the switch, USB to the trigger system

2 prepare the trigger system :AC power supply, RJ45 to the DAQ computer LOCAL port, USB to the DAQ computer

3 plug the trigger LEMO cable, DI2C CAT7 cable

4 power ON the DAQ computer, there's a button outside

5 power ON the trigger system, there's a button near the AC connector