

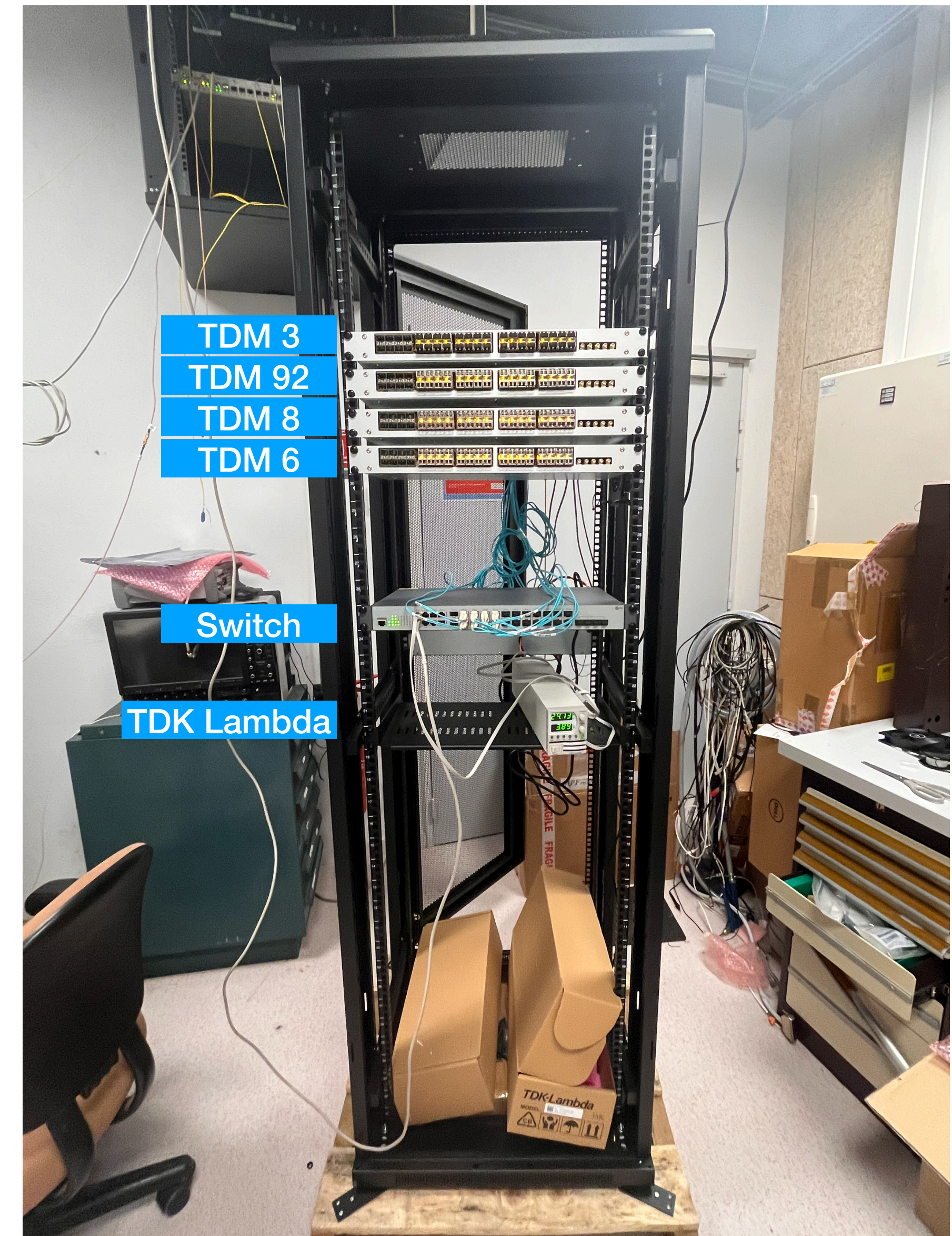


TDM Setup @LPNHE

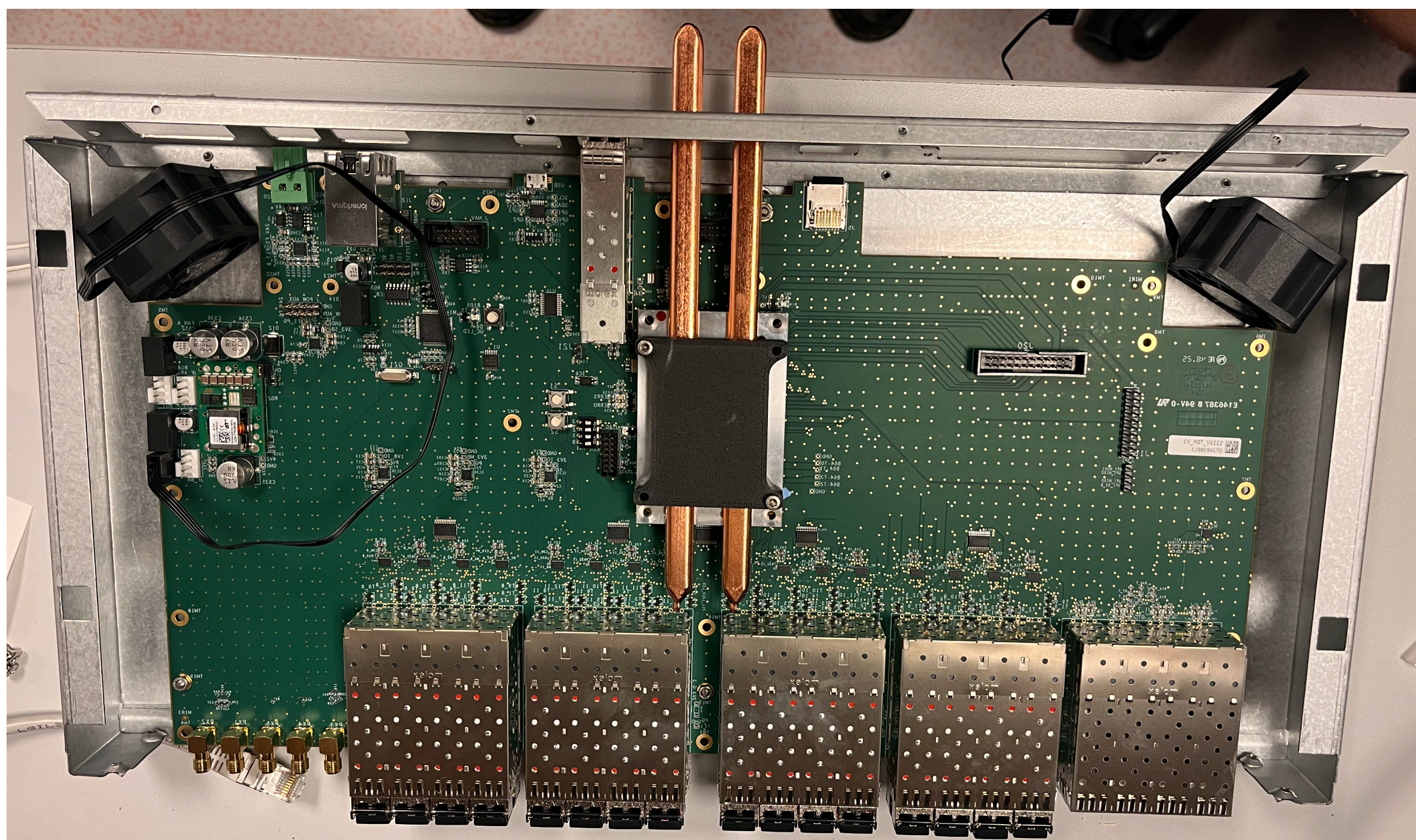
Maria Adriana Sabia - LPNHE

Fully equipped rack

- One rack equipped with 4 TDM boards
- From top to bottom:
 TDM 3 v3 - IP: 192.168.1.103
 TDM 92 v2 - IP: 192.168.1.192
 TDM 8 v3 - IP: 192.168.1.108
 TDM 6 v3 - IP: 192.168.1.106
- All the boards are connected via optical fiber to a switch and from the switch to another switch which is connected to the PC
- 1 TDK Lambda for bias voltage
- 24 V provided via HV splitter mounted on the back of the rack
- Heat pipe not completely glued to FPGA, it moves if you try to extract it
- Maybe I will replace the v2 with one v3



- One big fan on the side, we might need 4 in total, staggered to cover all the length of the rack on both sides
- 2 small fans mounted diagonally with double-face tape directly in the box
- I left a space between adjacent TDMs because it is hard to mount clips when the adjacent board is mounted, there is space and it probably improves airflow



- MIDAS up and running on the 4 boards
- Usually we run the docker container in a tmux session and on each board each frontend is initialised via system control
- The equipment index is derived from the static IP address assigned to the board (192.168.1.108 → 08)
- The microcontroller equipment for the moment is commented out as it causes communication issues (already noted by Romain). What should we do?

TDM status

Update page every seconds. Pause updates

TDM summary

	OK	Error	Offline							
00	01	02	03	04	05	06	07	08	09	
10	11	12	13	14	15	16	17	18	19	
20	21	22	23	24	25	26	27	28	29	
30	31	32	33	34	35	36	37	38	39	
40	41	42	43	44	45	46	47	48	49	
50	51	52	53	54	55	56	57	58	59	
60	61	62	63	64	65	66	67	68	69	
70	71	72	73	74	75	76	77	78	79	
80	81	82	83	84	85	86	87	88	89	
90	91	92								

hkclocks
Execute: /tdmsc/panels/voltage_alarm.sh 'Voltage Alarm: TDM 0: Voltage of SFP 1 in Slot 3 below 3 V...'
Alarms: TDM 0: SFP 1 Slot 3 VCC, TDM 0: SFP 0 Slot 6 VCC
31 Mar 2026, 09:26:07 UTC+2

Voltage Alarm:TDM 0: Voltage of SFP 0 in Slot 6 below 3 V
Reset

Voltage Alarm:TDM 0: Voltage of SFP 1 in Slot 3 below 3 V
Reset

Run Status

Run 0	Start: Tue Sep 09 15:04:42 1997	Stop: Tue Sep 09 15:04:42 1997
Stopped	Alarms: On	runStatusSequencer
Start		Logger not running

1774941938 09:25:38.010 2026/03/31 [tdm_mfe_08,INFO] Execute: /tdmsc/panels/voltage_alarm.sh 'Voltage Alarm: TDM 0: Voltage of SFP 1 in Slot 3 below 3 V'

Equipment

Equipment +	Status	Events	Events[/s]	Data[MB/s]
tdm_registers_92	Frontend stopped	0	0.0	0.000
tdm_registers_06	tdm_mfe_06@zynqmp	5548	0.0	0.000
tdm_fpga_sensors_06	tdm_mfe_06@zynqmp	5548	0.0	0.000
tdm_ds2438_sensors_06	tdm_mfe_06@zynqmp	5548	0.0	0.000
tdm_sfp_sensors_06	tdm_mfe_06@zynqmp	5548	0.0	0.000
tdm_registers_03	tdm_mfe_03@zynqmp	5547	1.0	0.000
tdm_fpga_sensors_03	tdm_mfe_03@zynqmp	5547	1.0	0.000
tdm_ds2438_sensors_03	tdm_mfe_03@zynqmp	5547	1.0	0.000
tdm_sfp_sensors_03	tdm_mfe_03@zynqmp	5547	1.0	0.001
tdm_registers_08	tdm_mfe_08@zynqmp	5546	0.0	0.000
tdm_fpga_sensors_08	tdm_mfe_08@zynqmp	5546	0.0	0.000
tdm_ds2438_sensors_08	tdm_mfe_08@zynqmp	5546	0.0	0.000
tdm_sfp_sensors_08	tdm_mfe_08@zynqmp	5546	0.0	0.000
tdm_registers_00	tdm_mfe_00@zynqmp	5541	0.0	0.000
tdm_fpga_sensors_00	tdm_mfe_00@zynqmp	5541	0.0	0.000
tdm_ds2438_sensors_00	tdm_mfe_00@zynqmp	5541	0.0	0.000
tdm_sfp_sensors_00	tdm_mfe_00@zynqmp	5541	0.0	0.000

Logging Channels

Channel	Events	MB written	Compr.	Disk Level
Lazy Label	Progress	File Name	# Files	Total

- Alarm system up and running, we must agree on the criteria
- Current criteria are:
 $T_{SFP} > 44 \text{ deg}$
 $V_{SFP} < 3 \text{ V}$
- Suggestions?
- For the moment it sends emails to me
- S-nail to be included in the next image of the docker, for the moment installed manually
- Log file keeps track of the alarms
- I see 2 SFPs with voltage lower than 3 on the v2, no issues on all the others

Voltage Alarm:TDM 0: Voltage of SFP 0 in Slot 6 below 3 V Reset

Voltage Alarm:TDM 0: Voltage of SFP 1 in Slot 3 below 3 V Reset

Play sound

Evaluated alarms						
Alarm	State	First triggered	Class	Condition	Current value	
Demo ODB	Disabled	-	Alarm	/Runinfo/Run number > 100	0	<input type="button" value="Reset"/>
TDM 0: SFP 0 Slot 3 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_00/Variables/TST3[0] > 44	[0] 35.40234375	<input type="button" value="Reset"/>
TDM 0: SFP 1 Slot 3 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_00/Variables/TST3[1] > 44	[1] 0.48046875	<input type="button" value="Reset"/>
TDM 0: SFP 2 Slot 3 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_00/Variables/TST3[2] > 44	[2] 33.55859375	<input type="button" value="Reset"/>
TDM 0: SFP 3 Slot 3 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_00/Variables/TST3[3] > 44	[3] 32.63671875	<input type="button" value="Reset"/>
TDM 0: SFP 0 Slot 4 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_00/Variables/TST4[0] > 44	[0] 33.09765625	<input type="button" value="Reset"/>
TDM 0: SFP 1 Slot 4 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_00/Variables/TST4[1] > 44	[1] 34.48046875	<input type="button" value="Reset"/>
TDM 0: SFP 2 Slot 4 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_00/Variables/TST4[2] > 44	[2] 35.40234375	<input type="button" value="Reset"/>
TDM 0: SFP 3 Slot 4 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_00/Variables/TST4[3] > 44	[3] 33.55859375	<input type="button" value="Reset"/>
TDM 0: SFP 0 Slot 5 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_00/Variables/TST5[0] > 44	[0] 28.94921875	<input type="button" value="Reset"/>
TDM 0: SFP 1 Slot 5 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_00/Variables/TST5[1] > 44	[1] 32.17578125	<input type="button" value="Reset"/>
TDM 0: SFP 2 Slot 5 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_00/Variables/TST5[2] > 44	[2] 33.09765625	<input type="button" value="Reset"/>
TDM 0: SFP 3 Slot 5 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_00/Variables/TST5[3] > 44	[3] 31.71484375	<input type="button" value="Reset"/>
TDM 0: SFP 0 Slot 6 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_00/Variables/TST6[0] > 44	[0] 0.48046875	<input type="button" value="Reset"/>
TDM 0: SFP 1 Slot 6 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_00/Variables/TST6[1] > 44	[1] 31.25390625	<input type="button" value="Reset"/>
TDM 0: SFP 2 Slot 6 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_00/Variables/TST6[2] > 44	[2] 31.25390625	<input type="button" value="Reset"/>
TDM 0: SFP 3 Slot 6 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_00/Variables/TST6[3] > 44	[3] 31.71484375	<input type="button" value="Reset"/>
TDM 8: SFP 0 Slot 3 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_08/Variables/TST3[0] > 44	[0] 35.015625	<input type="button" value="Reset"/>
TDM 8: SFP 1 Slot 3 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_08/Variables/TST3[1] > 44	[1] 36.15234375	<input type="button" value="Reset"/>
TDM 8: SFP 2 Slot 3 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_08/Variables/TST3[2] > 44	[2] 37.85546875	<input type="button" value="Reset"/>
TDM 8: SFP 3 Slot 3 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_08/Variables/TST3[3] > 44	[3] 36.33984375	<input type="button" value="Reset"/>
TDM 8: SFP 0 Slot 4 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_08/Variables/TST4[0] > 44	[0] 35.39453125	<input type="button" value="Reset"/>
TDM 8: SFP 1 Slot 4 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_08/Variables/TST4[1] > 44	[1] 36.15234375	<input type="button" value="Reset"/>
TDM 8: SFP 2 Slot 4 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_08/Variables/TST4[2] > 44	[2] 36.15234375	<input type="button" value="Reset"/>
TDM 8: SFP 3 Slot 4 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_08/Variables/TST4[3] > 44	[3] 35.203125	<input type="button" value="Reset"/>
TDM 8: SFP 0 Slot 5 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_08/Variables/TST5[0] > 44	[0] 31.60546875	<input type="button" value="Reset"/>
TDM 8: SFP 1 Slot 5 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_08/Variables/TST5[1] > 44	[1] 36.90625	<input type="button" value="Reset"/>
TDM 8: SFP 2 Slot 5 Temperature	OK	-	Temperature Alarm	/Equipment/tdm_sfp_sensors_08/Variables/TST5[2] > 44	[2] 34.63671875	<input type="button" value="Reset"/>

- History subdivided by TDM board, you can monitor all the parameters as a function of time

History

Groups Panels open in old history display

ALL

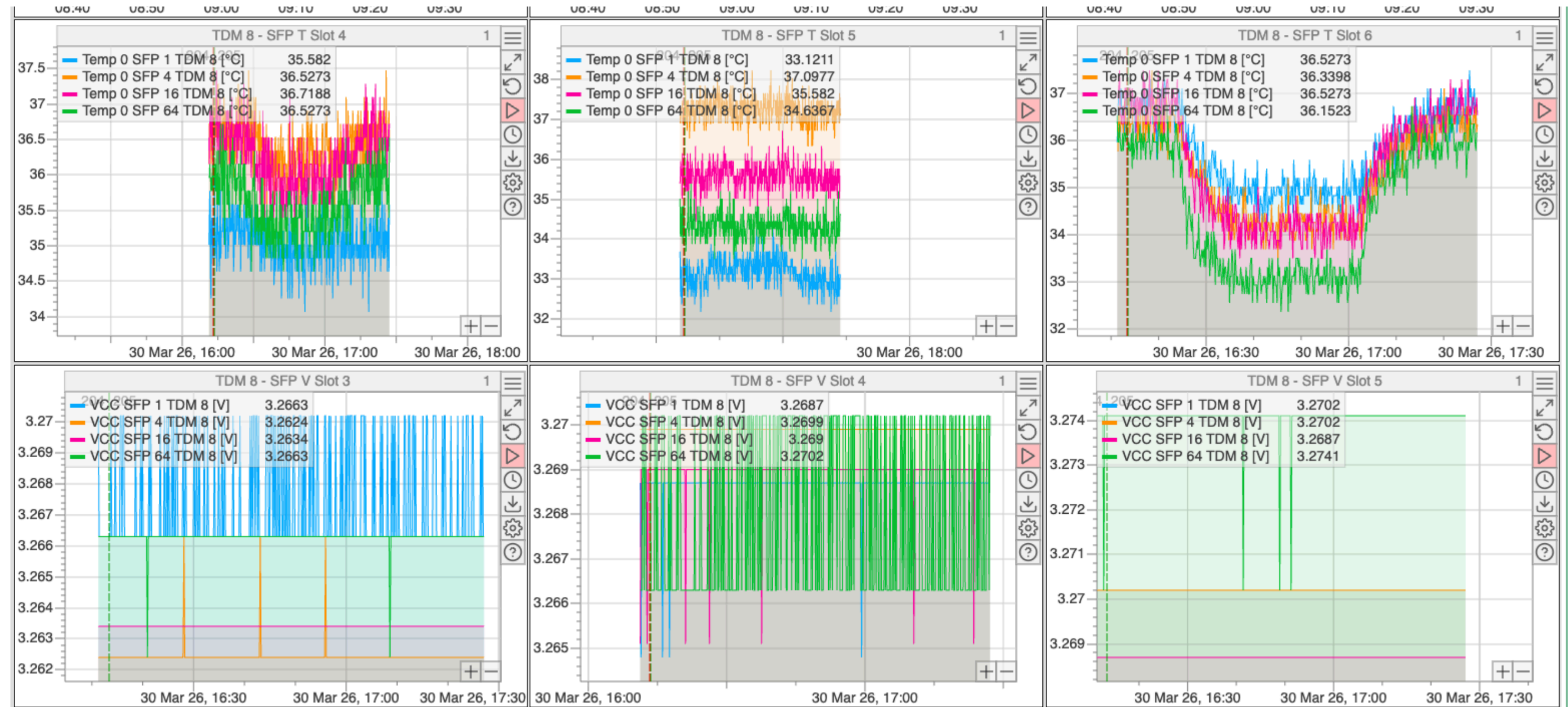
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TDM 8 ds2438 Voltage ds2438 Current ds2438 Temperature Microcontroller Temperature Microcontroller Voltage SFP T Slot 3 SFP T Slot 4 SFP T Slot 5 SFP T Slot 6 SFP V Slot 3 SFP V Slot 4 SFP V Slot 5 SFP V Slot 6 SFP I Slot 3 SFP I Slot 4 SFP I Slot 5 SFP I Slot 6 SFP OP TX Slot 3 SFP OP TX Slot 4 SFP OP TX Slot 5 SFP OP TX Slot 6 SFP OP RX Slot 3 SFP OP RX Slot 4 SFP OP RX Slot 5 SFP OP RX Slot 6 SFP ID Slot 3 SFP ID Slot 4 SFP ID Slot 5 SFP ID Slot 6 FPGA Temperature FPGA Voltages New

TDM 3 ds2438 Voltage ds2438 Current ds2438 Temperature Microcontroller Temperature Microcontroller Voltage SFP T Slot 3 SFP T Slot 4 SFP T Slot 5 SFP T Slot 6 SFP V Slot 3 SFP V Slot 4 SFP V Slot 5 SFP V Slot 6 SFP I Slot 3 SFP I Slot 4 SFP I Slot 5 SFP I Slot 6 SFP OP TX Slot 3 SFP OP TX Slot 4 SFP OP TX Slot 5 SFP OP TX Slot 6 SFP OP RX Slot 3 SFP OP RX Slot 4 SFP OP RX Slot 5 SFP OP RX Slot 6 SFP ID Slot 3 SFP ID Slot 4 SFP ID Slot 5 SFP ID Slot 6 FPGA Temperature FPGA Voltages New

TDM 6 ds2438 Voltage ds2438 Current ds2438 Temperature Microcontroller Temperature Microcontroller Voltage SFP T Slot 3 SFP T Slot 4 SFP T Slot 5 SFP T Slot 6 SFP V Slot 3 SFP V Slot 4 SFP V Slot 5 SFP V Slot 6 SFP I Slot 3 SFP I Slot 4 SFP I Slot 5 SFP I Slot 6 SFP OP TX Slot 3 SFP OP TX Slot 4 SFP OP TX Slot 5 SFP OP TX Slot 6 SFP OP RX Slot 3 SFP OP RX Slot 4 SFP OP RX Slot 5 SFP OP RX Slot 6 SFP ID Slot 3 SFP ID Slot 4 SFP ID Slot 5 SFP ID Slot 6 FPGA Temperature FPGA Voltages New

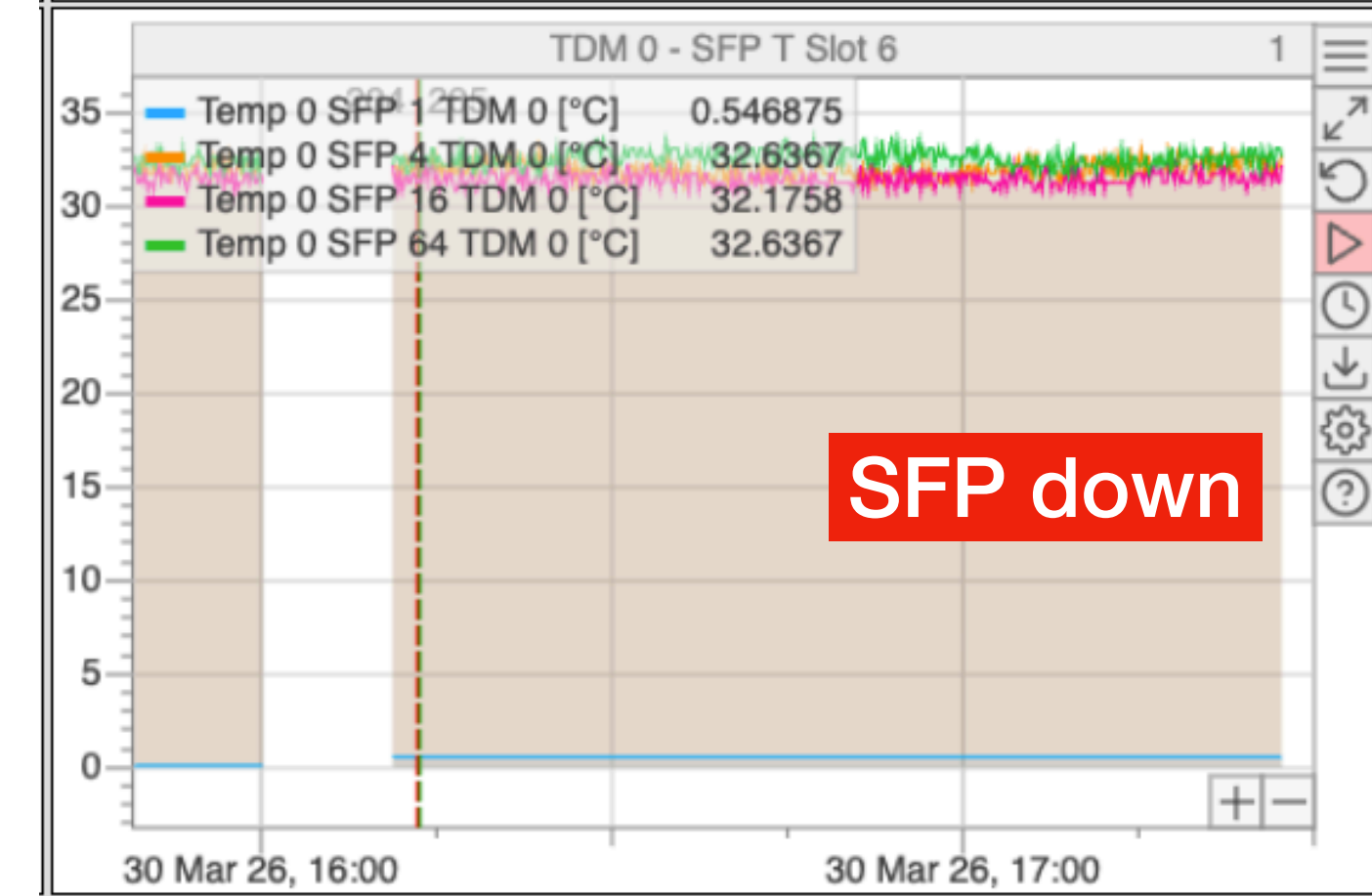
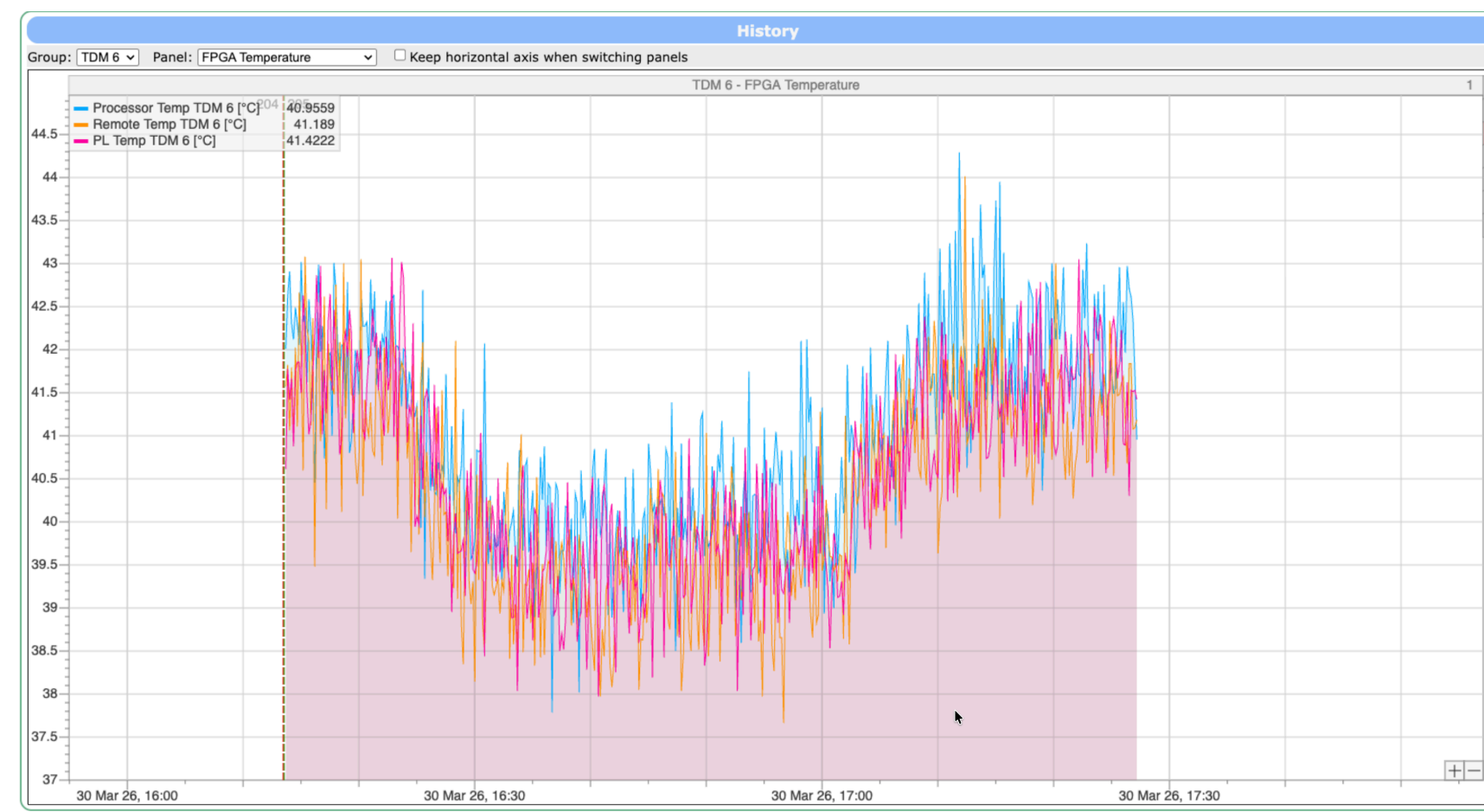
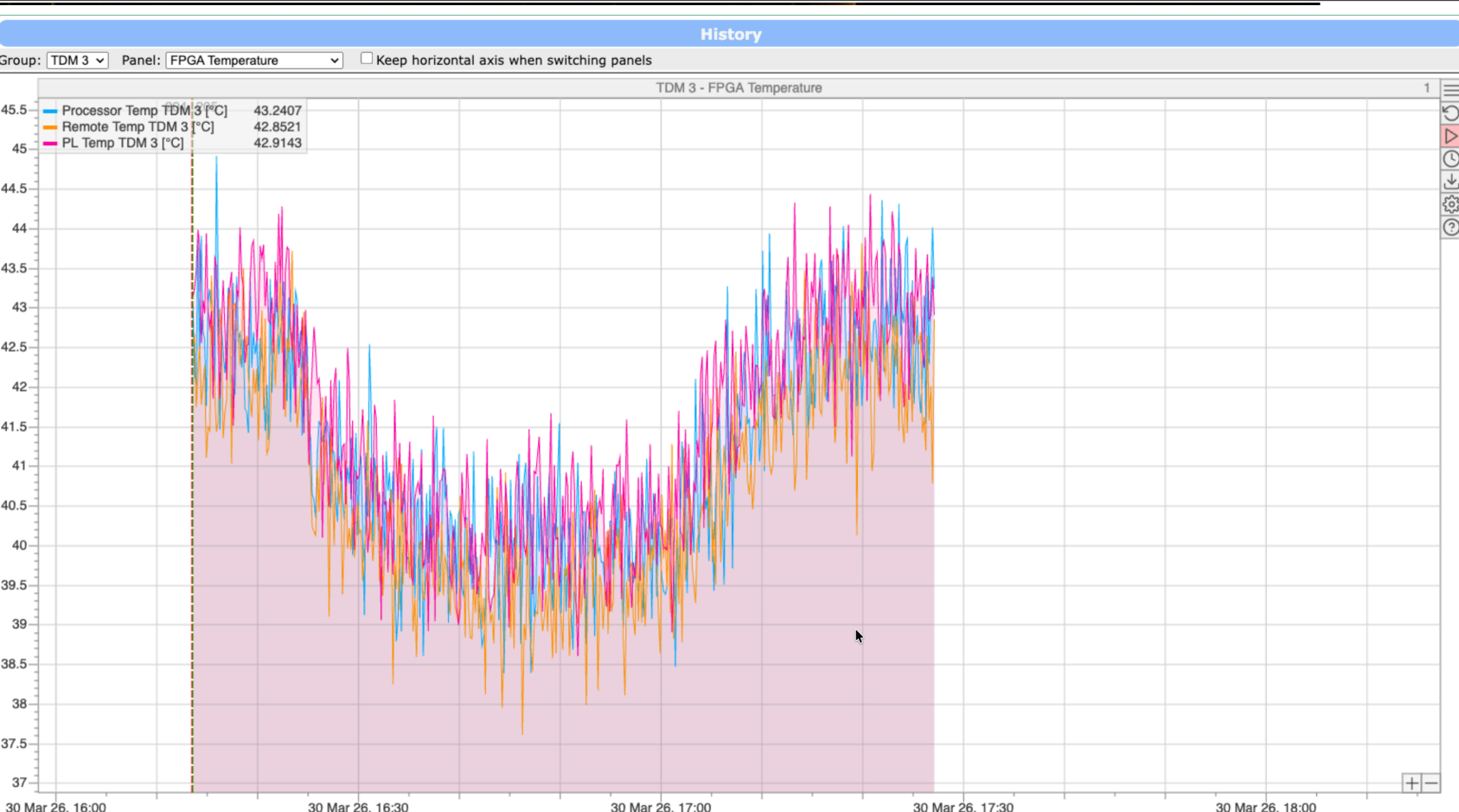
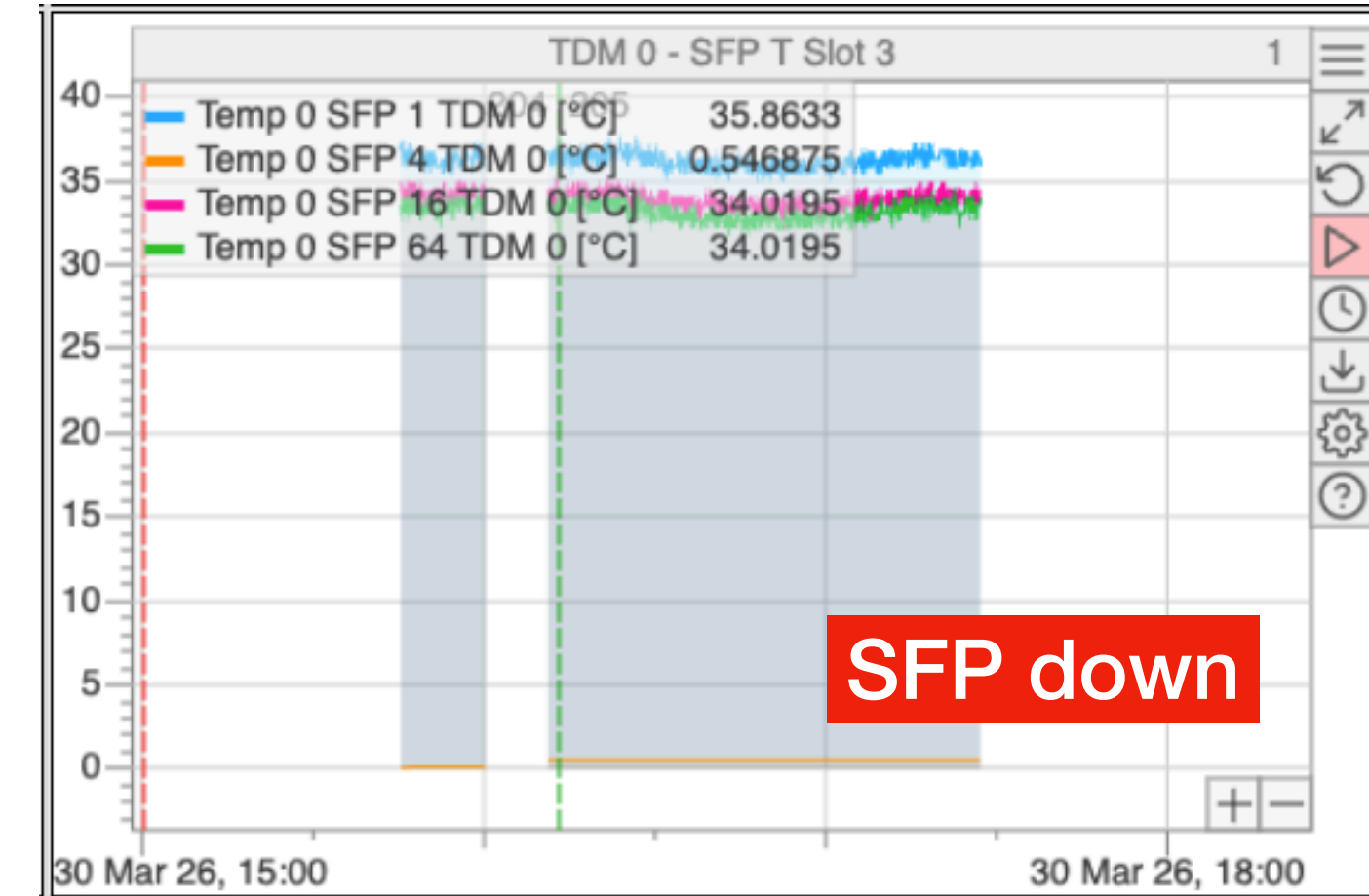
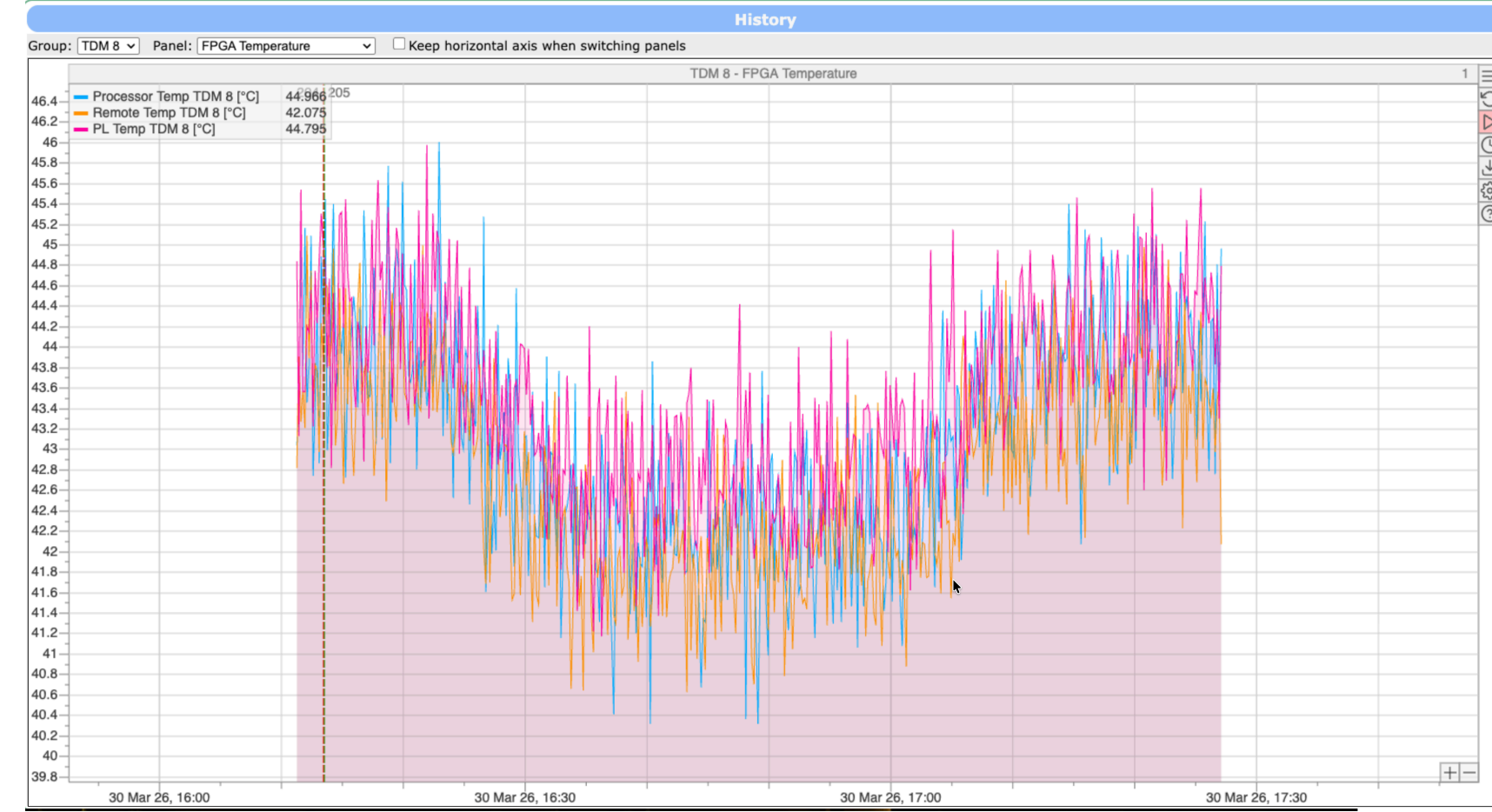
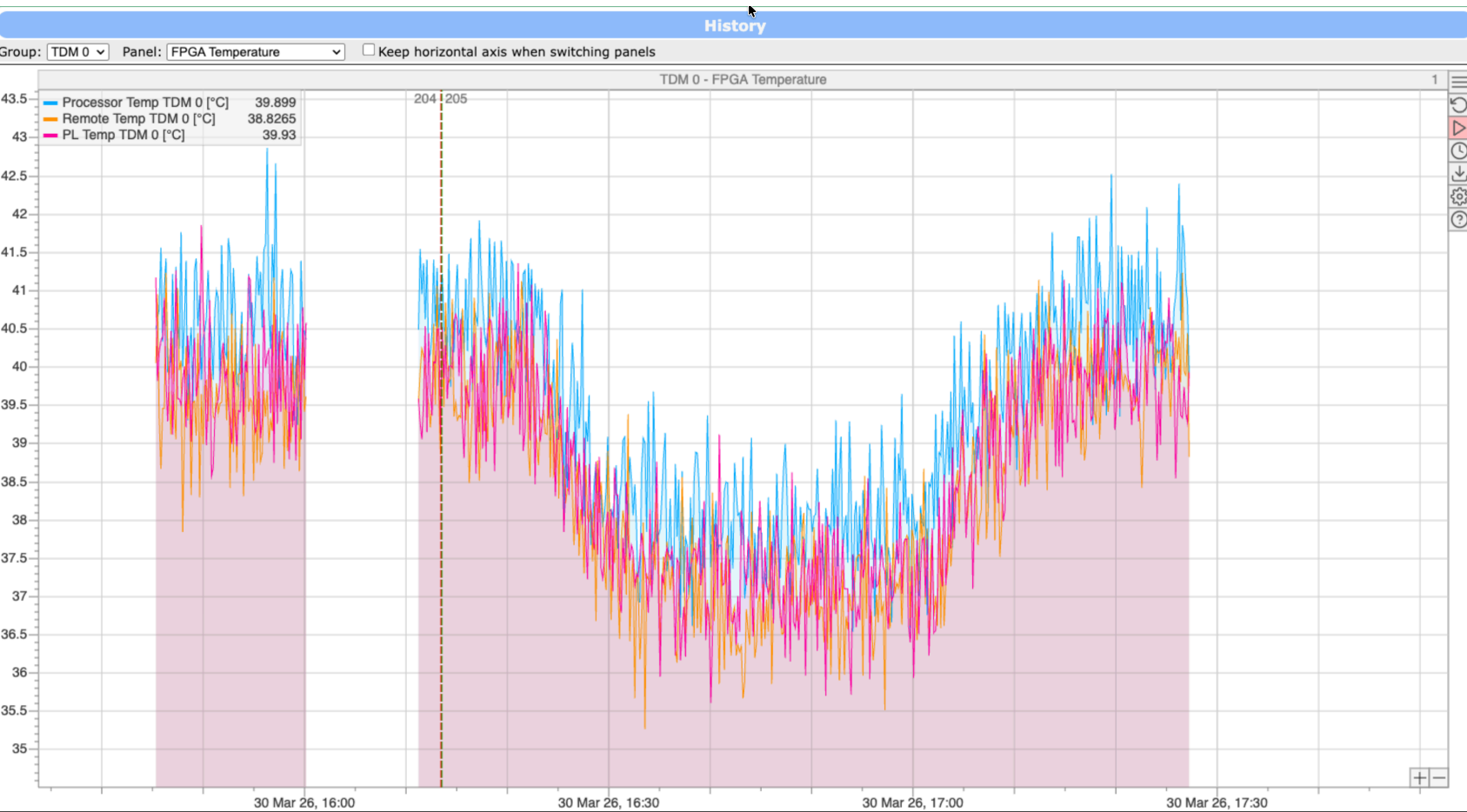
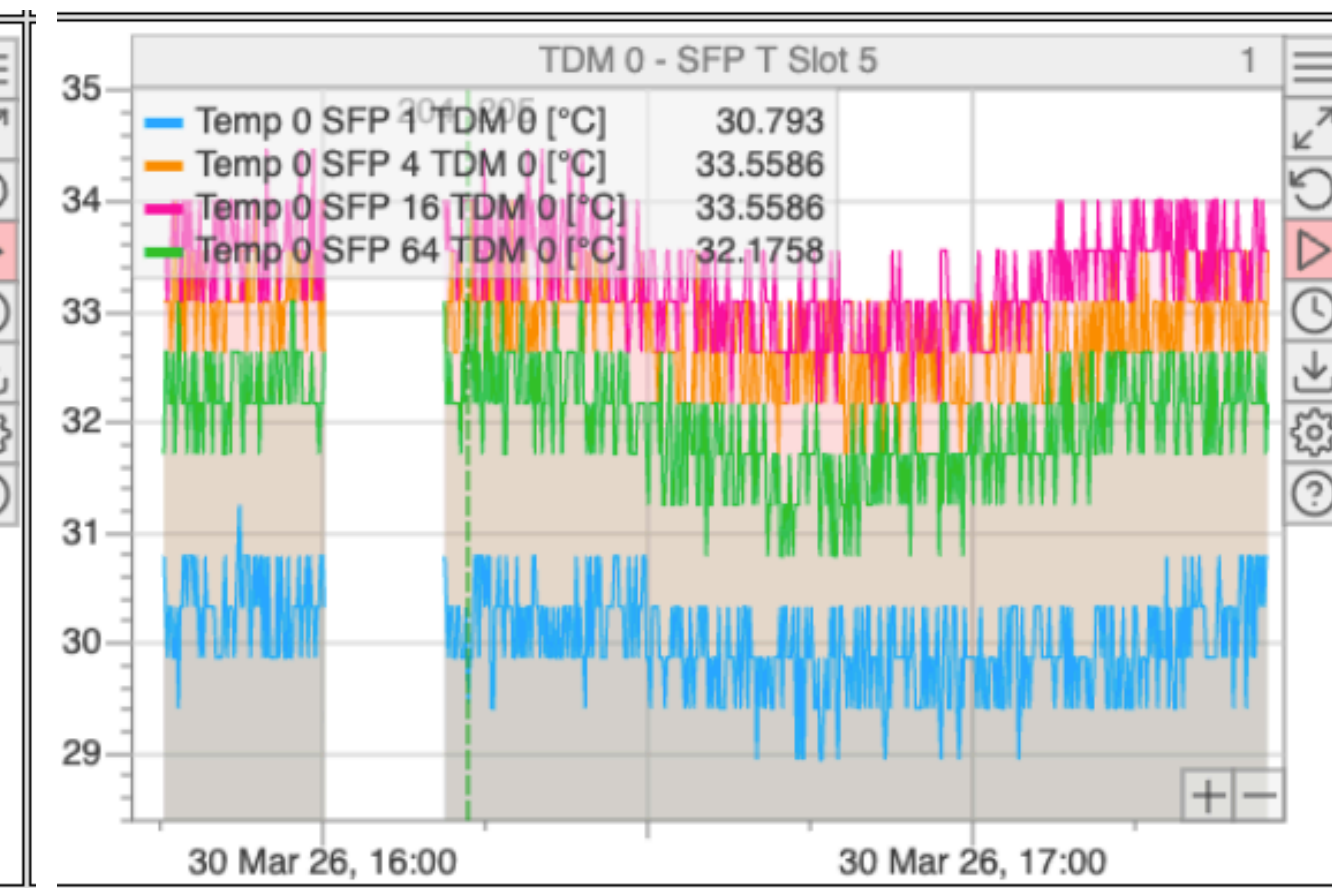
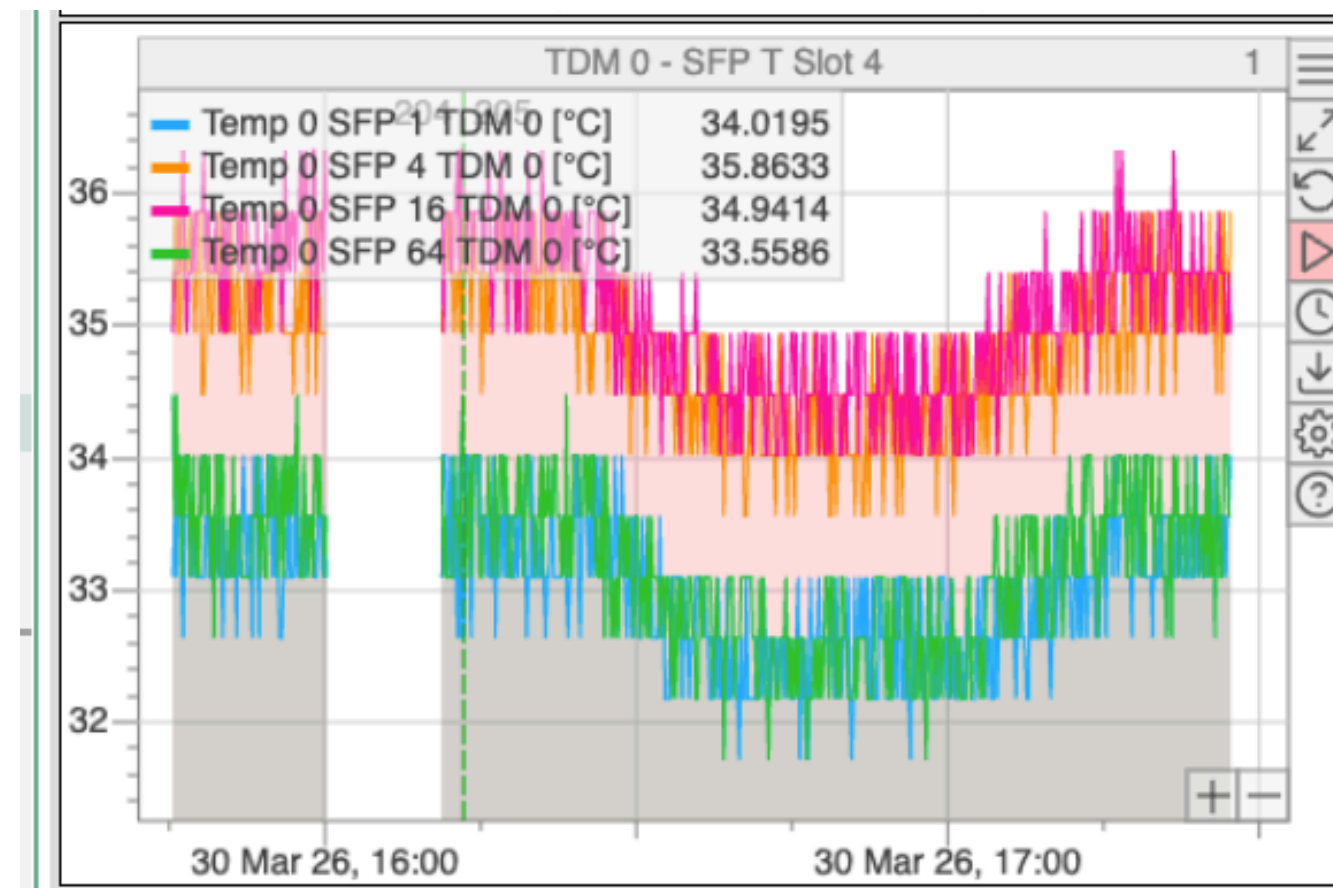
Add New Group





Temperature test

- I did a ~half an hour temperature test by turning on the side fan
- SFPs are slightly feeling airflow
- The 2 SFPs with lower voltage have also lower temperature
- FPGA temperature decreases but not by a lot, is it due to the thermal paste not properly spread? Not enough airflow?



Extra tweaks

- I replaced TDM v2 with TDM 2 v3
- I noticed one fuse broken on the HV splitter, can we replace it?

