



# RFPI FSP mechanics and interfaces

Grzegorz Jabłoński





# About Us



Grzegorz Jabłoński

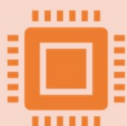


Ph.D. in Electrical Engineering



Role

RFPI project contractor  
FPGA/software engineer  
Hardware designer



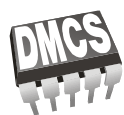
Relevant experience

FLASH/XFEL LLRF Systems (2003-2012):  
HW/FW designer  
ITER: FPGA/software engineer, system analyst  
(since 2010)  
ESS-ERIC: FPGA/software engineer (since  
2018)





- General layout
- Front and back panels
- Signal connectors





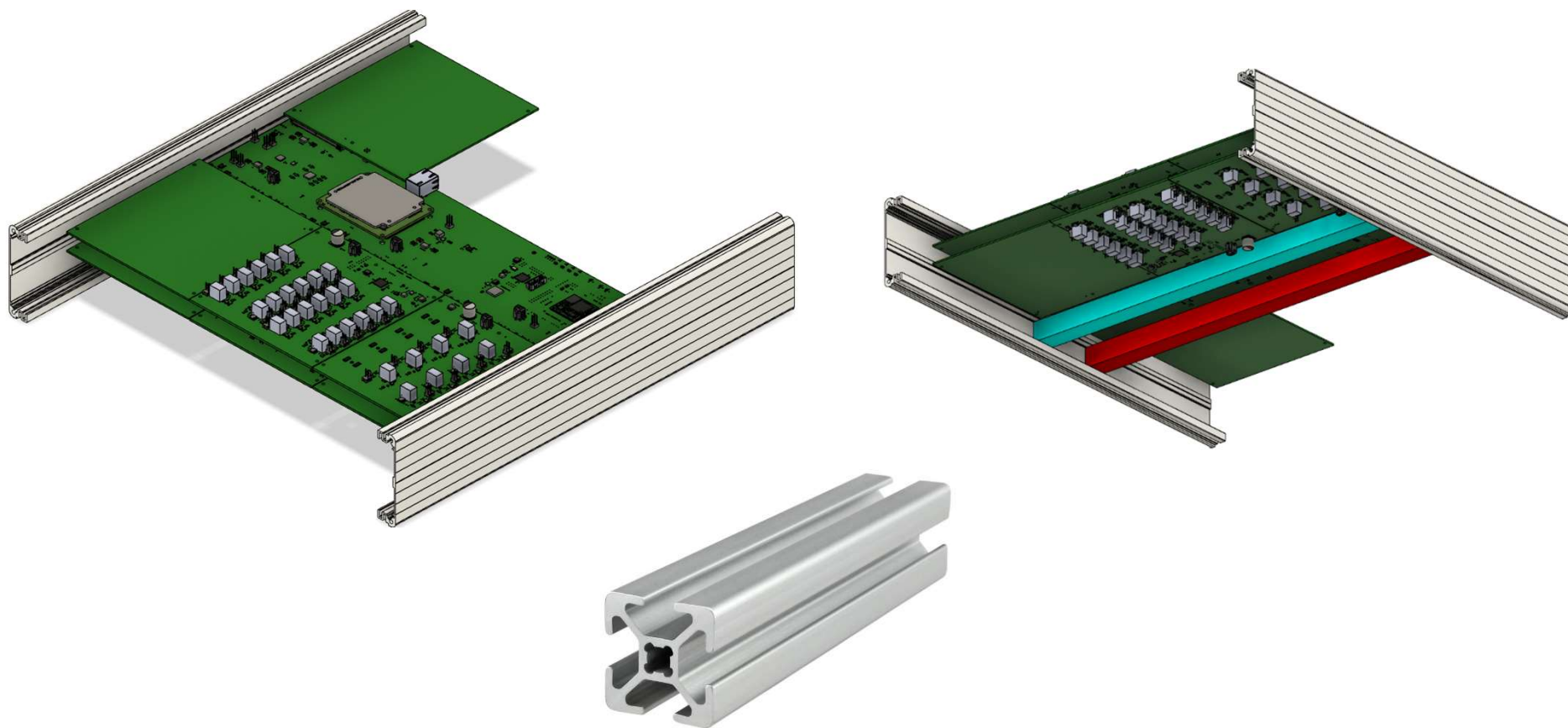
## General layout

- The RFPI FSP is put in a RM-120-450-A-S-H 19" 2U rack mounted aluminum enclosure.



# General layout

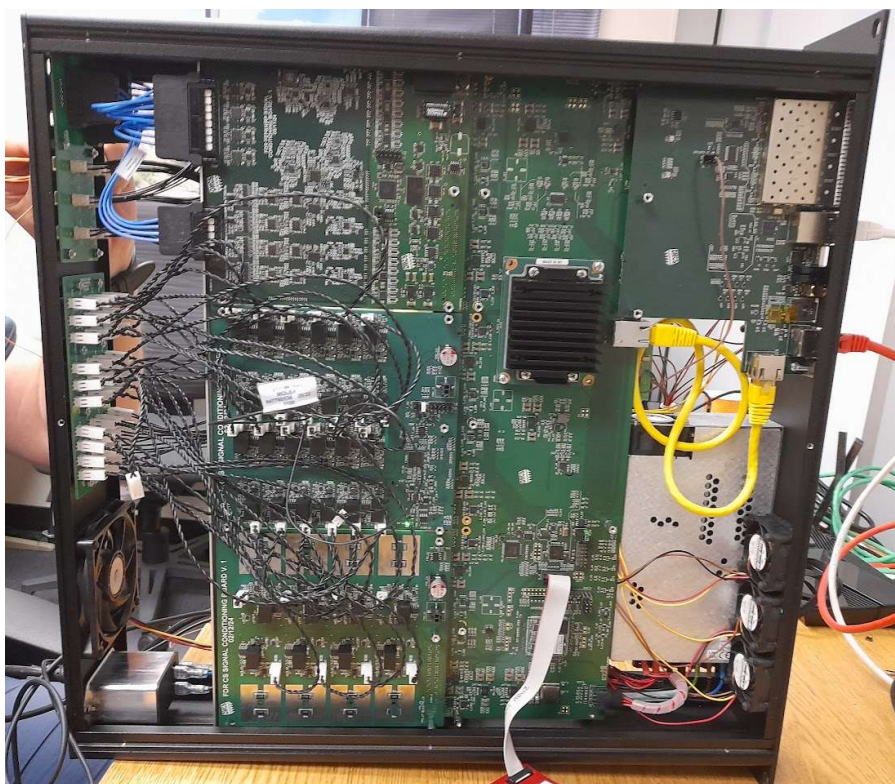
- To ensure easy access for good serviceability, the carrier board is mounted on two horizontal 20 x 20 mm T-slotted beams attached to the sidewalls.





# General layout

- The interface board is mounted to the front panel, signal conditioning boards have an additional horizontal support L-beam.
- Six inwards-blowing 1U cooling fans and the power supply are mounted to the front panel.
- One 2U outwards-blowing cooling fan is mounted to the back panel.

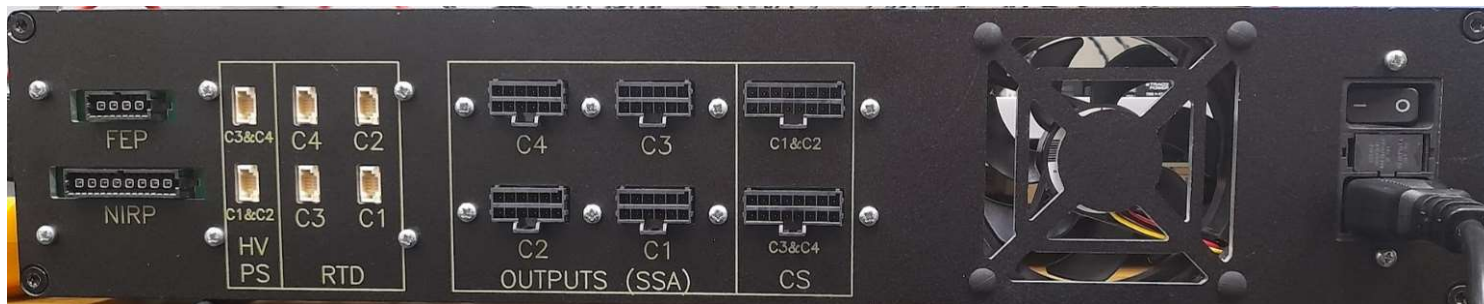


## Front and back panel

- The front panel provides all the digital interfaces: two RJ-45 Ethernet sockets for the management processor and main processor, respectively, SD card slot, USB connector for serial interfaces, 4 SFP sockets, 8 status indicators and a clock input.



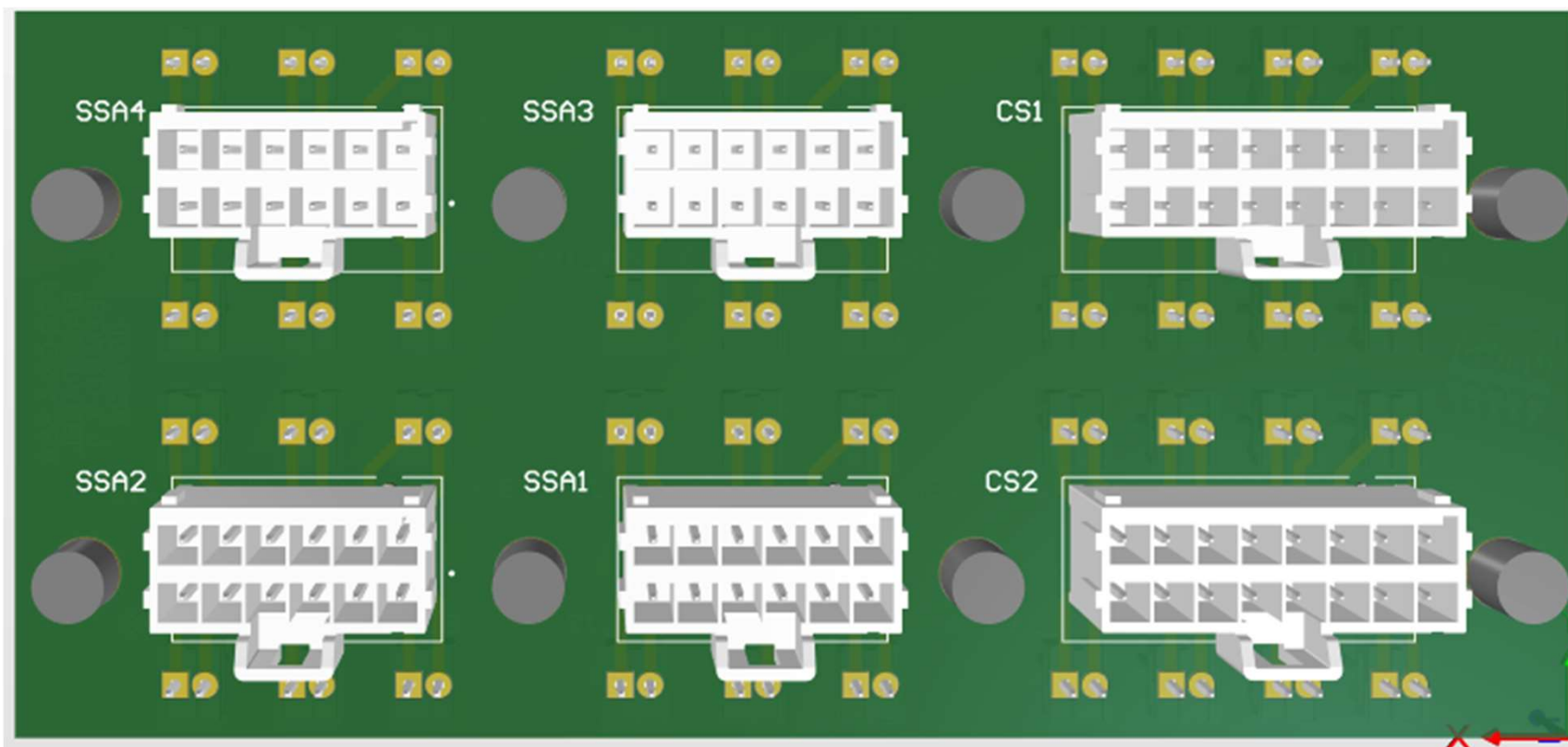
- The inputs and outputs of the conditioning boards are located on the backpanel. They are connected to the conditioning boards via internal cables. Two separate PCBs attached to the backpanel provide support for the connectors.







# CS and SSA Backpanel Connectors

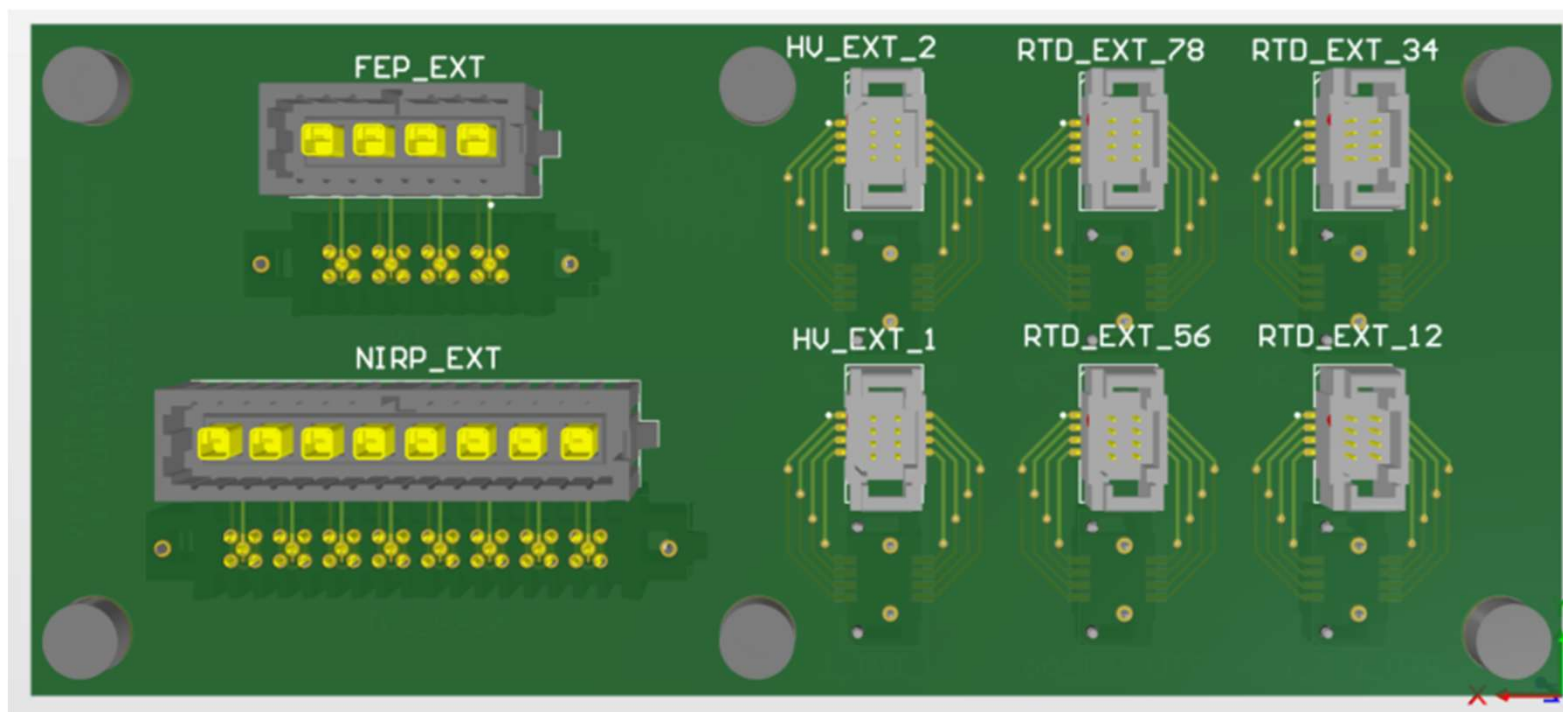


Connector Designator	Manufacturer	Manufacturer Product Number
CS1	MOLEX	1722981316
CS2	MOLEX	1722981316
SSA1	MOLEX	1722981312
SSA2	MOLEX	1722981312
SSA3	MOLEX	1722981312
SSA4	MOLEX	1722981312





# FEP, NIRP, RTD and HV Backpanel Connectors



Connector Designator	Manufacturer	Manufacturer Product Number
FEP_EXT	SAMTEC INC.	IP5-04-05.0-L-S-1-TR
NIRP_EXT	SAMTEC INC.	IP5-08-05.0-L-S-1-TR
RTD_EXT_12	SAMTEC INC.	T1M-04-GF-DV
RTD_EXT_34	SAMTEC INC.	T1M-04-GF-DV
RTD_EXT_56	SAMTEC INC.	T1M-04-GF-DV
RTD_EXT_78	SAMTEC INC.	T1M-04-GF-DV
HV_EXT_1	SAMTEC INC.	T1M-04-GF-DV
HV_EXT_2	SAMTEC INC.	T1M-04-GF-DV