



Serial data concentrator and distributor for the PS digital beam control

Project code	65
Supervisor	Heiko DAMERAU
Department	BE
Title	
Serial data concentrator and distributor for the PS digital beam control	
Description	
<p>The low-level RF systems of the PS are being renovated during the Long Shutdown 2 (LS2) within the framework of the LHC Injector Upgrade (LIU) project. The different sub-systems of the entirely digital implementation will exchange data in various serial transmission formats. For example real-time functions are generated with a resolution of 16 bit at a moderate data rate of 3.2 Mbit/s, while demodulated RF signals will be transferred at significantly higher data rate, typically in the Gbit/s range. To interface between these formats and to combine data streams, a flexible data concentrator and distributor module must be developed. The hardware will be based on an existing VME carrier module (SVEC) with mezzanine cards (FMC). The project covers the design of the firmware in VHDL, the commissioning in the laboratory and, during the start-up after LS2, in the PS accelerator as an integral part of the upgraded low-level RF system.</p>	
Functions and Training Value	
You should have an initial experience with programmable logic, in particular with the VHDL language.	
Qualifications/Skills	
Candidates should have an initial experience with programmable logic, in particular with the VHDL language. They will then become part of the international team of hard- and firmware design engineers in the feedback section of the radiofrequency group.	