

## The use of DAMC-UNIZUP board for the MTCA.4 BPM system for PETRA IV

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In the last three years, Instrumentation Technologies (I-Tech) and DESY have developed a MTCA.4 BPM electronics prototype for the PETRA IV TDR phase. The prototype consists of the BPM-optimized signal conditioning and digitizing RTM module from I-Tech, and the cost optimized DAMC-UNIZUP AMC processing board from DESY MSK. The prototype was delivered at the end of 2022 and confirmed with beam tests in PETRA III.

In the last year, the BPM application, including the FPGA gateway as well as the software, has grown into a mature solution, becoming hardware agnostic, both in terms of the AMC board used (DAMC-FMC2ZUP or DAMC-UNIZUP) as well as the platform used (MTCA.4 or Libera Brilliance+). The techniques and challenges required to reach this level of maturity, both in terms of hardware and software, are described.

In 2024, I-Tech licensed the DAMC-UNIZUP board from DESY-MSK: the board is planned to be used also for the PETRA-IV Fast-Orbit Feedback architecture, and can be considered for other applications requiring the RTM+AMC topology.

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