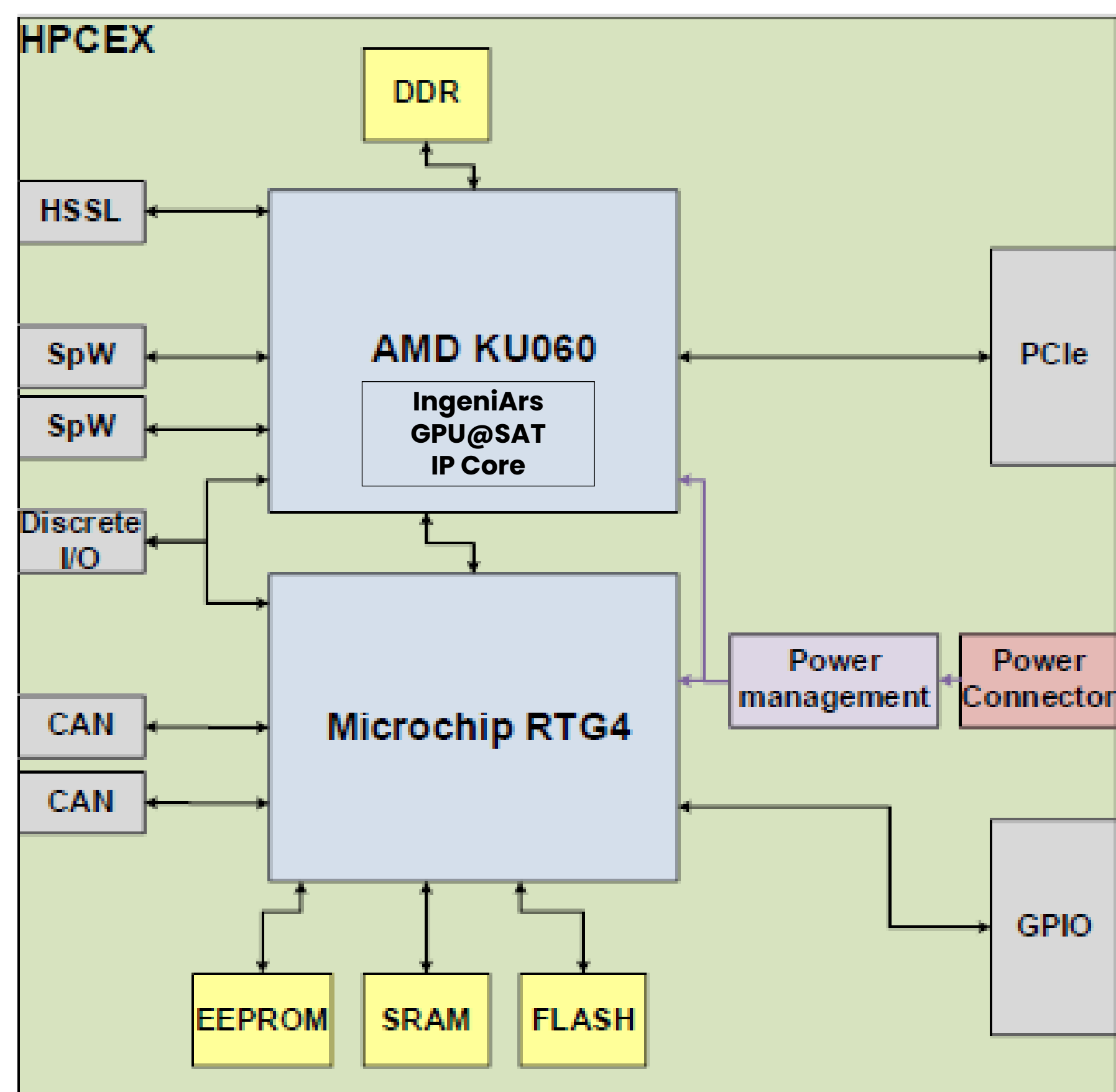


HPCEX: Space-Qualified Solution for High-Performance Computing

Architecture

HPCEX: High Performance Computing Edge Extension

Context: High-Performant Space-Qualified Board for On-Board Processing



High-End Space-Qualified FPGA: AMD KU060

- GPU@SAT IP Core for AI-based processing
- HSSL Interfaces (SpFi, WzL, SpW)
- Discrete I/O

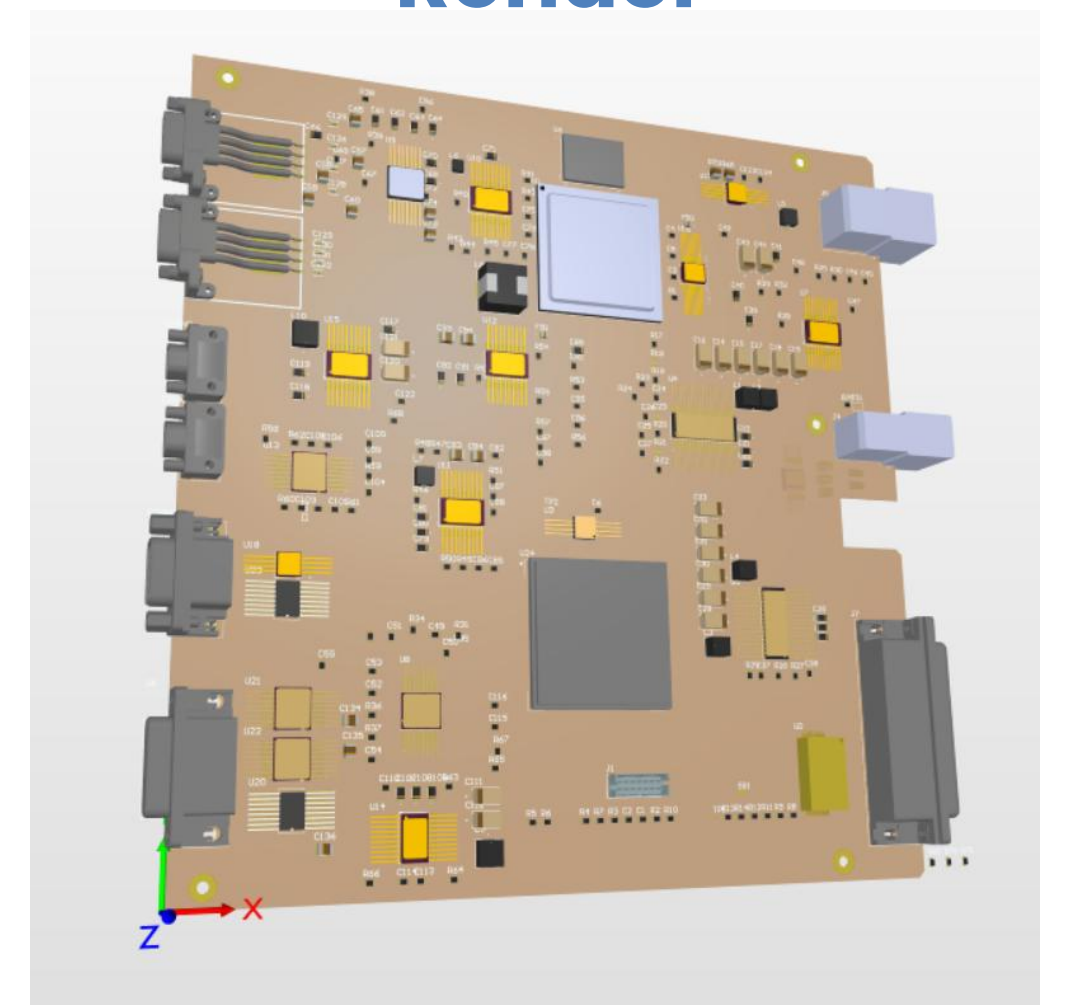
Companion rad-hard FPGA: Microchip RTG4

- AMD KU060 control, programming and scrubbing
- FDIR
- CAN Interfaces
- Discrete I/O

Backplane interface

- PCIe
- GPIO
- Power Connector

Render



Development Roadmap:

- Q3 2025: EM manufactured and tested
- End of 2025: EQM manufactured and tested

Next step

EVOPRO: Enhanced Versatile On-board Processing unit for Reliable Operations

HPCEX Board

HPSCM Board

- **Microchip PIC64-HPSC Processor:** High reliability and Support AI/ML
- **AMD RFSoc FPGA:** SATCOM (TT&C, PDT), Mass Memory Interface
- **NAND Flash Mass Memory Unit**

Power Board

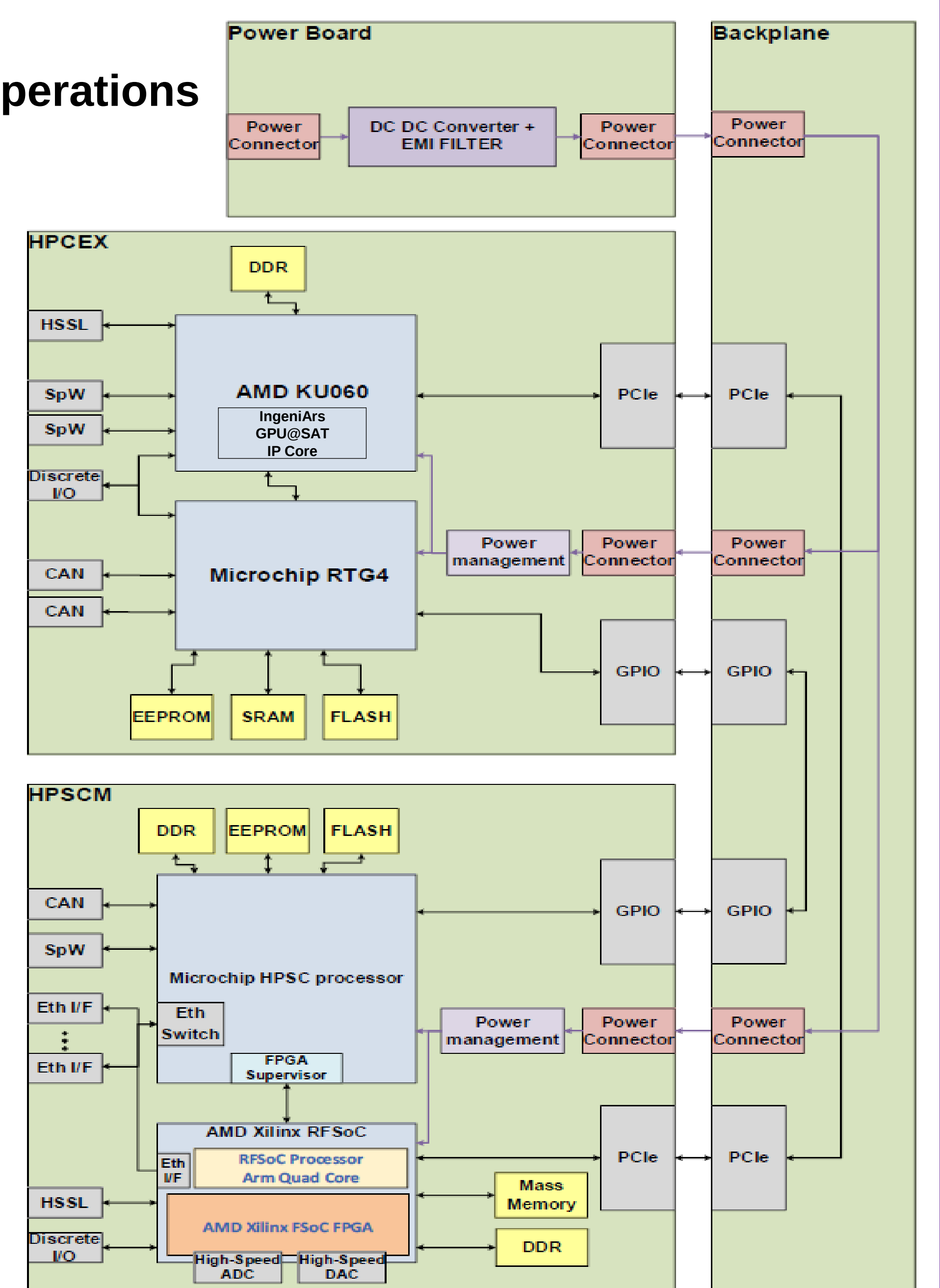
Custom Backplane (PCIe, GPIO)

Complete Flight Unit for

OBC, PDHU, SATCOM (TT&C and PDT) and Mass Memory unit

Development Roadmap:

- Q3 2026: EM and New Space Economy PFM



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