This modular system is based on a latest generation multiprocessor System-on-Chip, robustified by rad-hard elements to offer an unprecedented processing power and efficiency on your mission. It allows further system miniaturization, system performance enhancement and in-orbit reconfigurability.

The single-board core element can be combined with mission specific complements such as RF and digital frontends as well as AI accelerators for maximum performances at optimized cost.
multiMIND - unprecedented signal and data processing capabilities

/// MAXIMUM PROCESSING PERFORMANCE based on Xilinx’s powerful multi-processor System-on-Chip Zynq® Ultrascale+™

/// ROBUST rad-hard supervisor and power circuitry enables safe operation even under adverse radiation environment

/// EFFICIENT enables hybrid processing based on FPGA and multi-core processing system

/// CUSTOMISABLE prepared for your mission specific complements such as RF-frontends, cameras, specific interface boards

/// VERSATILE offers a variety of standard interfaces

### Applicable in all areas of space and suitable for all sizes of satellites!

multiMIND is designed to boost the performance of your mission:

- / IoT
- / SATCOM
- / Spectrum Monitoring
- / Image data processing
- / ADS-B
- / AIS
- / Advanced SDR
- / Cognitive radio
- / Robotics
- / Artificial intelligence
- / GNC
- / Processing intensive applications

### Scope of delivery

**STANDARD**
- multiMIND processing board hardware
- Board support package (BSP): supervisor software, boot software for MPSoC, operating system, software drivers for peripherals, FPGA pinout, Vivado demo project
- EGSE debug board

**OPTIONAL / PAYLOAD**
- Mission specific mission/interface board
- Mission specific Software and/or FPGA implementations
- Full payload design

### multiMIND characteristics

**PROCESSING**
- MPSoC family: Xilinx Zynq Ultrascale+ ZU6EG, ZU9EG or ZU15EG
- Processing System: Quad-core ARM Cortex-A53 up to 1.5 GHz + Dual-core ARM Cortex-R5 up to 600 MHz
- Processing Logic: FF 429k-682k / LUT 215k-341k / DSP 1973-3528

**MEMORY**
- 4 GByte ECC working memory, 512 KByte MRAM
- 2x16 GByte NAND mission data storage
- 2x128 MByte NOR configuration storage

**ROBUSTNESS**
- Rad-hard ARM CORTEX M4 supervisor chip & power circuitry
- Immune against SEL, SEB and SEGR
- Configuration scrubbing & power lane monitoring

**SOFTWARE**
- Software and Firmware (BSP provided):
  - Standard O/S MPSoC PS: PetaLinux
  - Supervisor Software included (Free RTOS)
- Multiple MPSoC configurations storable

**INTERFACES**
- High speed interfaces (e.g. JESD 204B)
- FMC possible via daughter board
- Standard communication interfaces (CAN, I2C, UART, Ethernet, GPIO, clk, SPI, SpaceWire)

**SIZE, MASS AND POWER**
- Single-PCB in PC104 form factor
- Typ. stack with mission board / RF frontend in 0.5 U
- Power supply 8-28 V NRB
- Power consumption <5-20 W dependent on MPSoC variant and your application

**QUALIFICATION AND OPERATION**
- ISO 19863
- Design Lifetime LEO: 3-5 years
- Operating Temperature: -30°C to +60°C