

# XQR Versal for Space 2.0 Applications

## SPACE-GRADE VERSAL ACAP

The Space-Grade (XQR) Versal device is a continuation of Xilinx's full radiation tolerant, ultra-high throughput, machine learning capable and bandwidth performance offering of reconfigurable devices for satellite and space applications. Built on the Versal platform, this family includes the industry's first Adaptable Compute Acceleration Platform (ACAP) devices with flexible and dynamically reconfigurable high-performance AI/ML compute engines, DSP engines, programmable logic, 32Gb/s transceivers, dual-core Arm® Cortex-A72 and dual-core Arm Cortex-R5 embedded processors.

The XQR Versal is targeted for on board processing payload applications with a dramatic increase in compute density for vector-based algorithms, system logic cells, on-board SRAM and multi-gigabit transceivers as compared to the previous space devices. The devices will offer a processing sub-system, hardened peripherals and a platform controller facilitating true unlimited on-orbit reconfiguration and SEU mitigation.

Building on Xilinx's space heritage and highly successful 20nm and 65nm space-grade devices, the launch of the next generation of space devices advances the space industry by multiple process node generations setting a new benchmark for reconfigurable solutions in space.

## 7nm Adaptable SoC for Space Applications

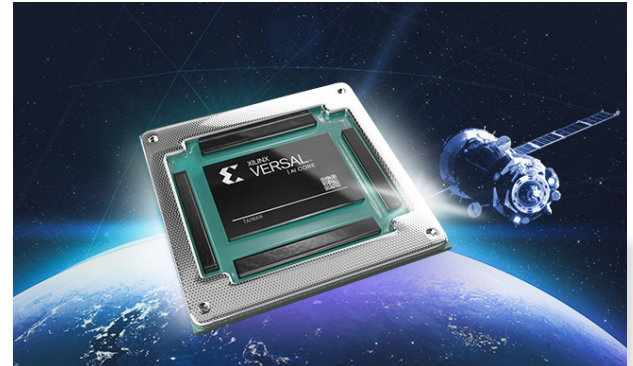
- > Versal AI Core and AI Edge family members with Scalar, Intelligent and Adaptable Engines (ARM CPUs, AI Engines & Prog. Logic)
- > Innovative silicon design for SEU mitigation
- > No SEL & Meets TID needs for LEO environments
- > True on-orbit reconfiguration with unlimited programming cycles

## Ruggedized Organic Packaging

- > Lidless, ruggedized package with stiffener ring for added thermal mitigation capabilities
- > Footprint compatible with commercial packages
- > AI Core 45mm x 45mm, AI Edge TBD

## Production Space Test Flow

- > MIL-PRF-38535 QML Class B Flow Screened for Organic Substrates
- > Designed for Space 2.0 Applications - 5 to 7 Year Mission Duration



## XILINX IN SPACE 2.0 APPLICATIONS

- > ML/AI
- > Cloud & Object Detection
- > Broadband Internet
- > High-Speed Networks
- > Hyperspectral Camera
- > Synthetic Aperture Radar
- > GPS
- > Instrumentation

## KEY TAKEAWAYS

- > Industry's first 7nm Radiation Tolerant Adaptive SoC targeted for Broadband and Constellation Satellite Applications
- > True unlimited on-orbit reconfiguration to enable "Upgrade-on-the-Fly" capability
- > No external scrubber required. XilSEM meets LEO SEU mitigation requirements
- > Complete solution to "process and analyze" for real-time on-board processing needs including machine learning and artificial intelligence

