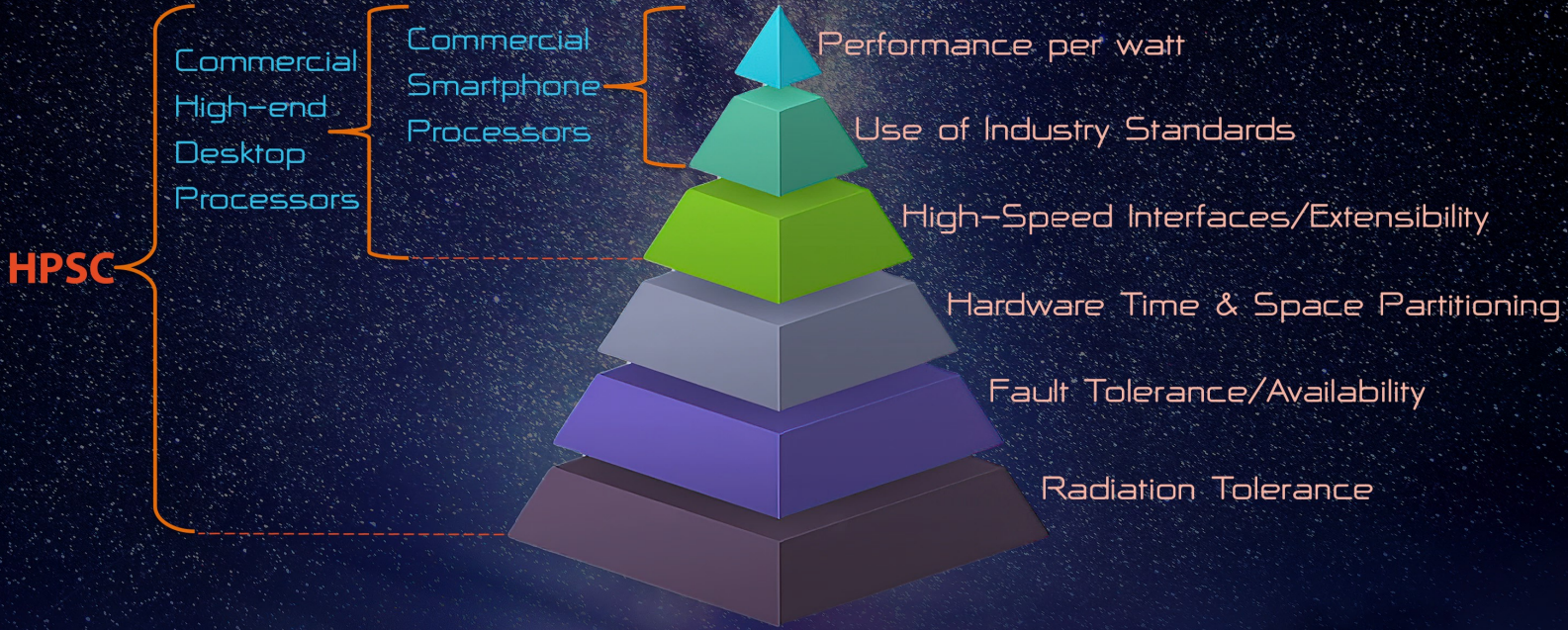


HIGH PERFORMANCE SPACEFLIGHT COMPUTING



Necessary Capabilities of Space Compute Hardware

SpaceVPX

- Objective: Increase use of standardized COTS solutions
 - Accelerate speed of development & reduce cost
- SpaceVPX interoperability report redefines NASA's needs.
- 3U and 6U SpaceVPX solutions

Interoperable Modules

- HPSC companion SpaceVPX modules
 - Storage, FPGA, etc.
- Aligning data plane, control plane, and expansion plane interconnect to Ethernet, SpaceWire, and PCIe.

Single Board Computers (SBCs)

- Leverage flight-ready HPSC based SpaceVPX SBCs from industry partners.
- Opportunity for vendors to expand HPSC-based SBCs into other form-factors for the broader A&D market.

Industry Standards

- SPiR, Vulkan, OpenCL, OpenMP, OpenGL

Performance Offload

- NVIDIA, XILINX, MICROCHIP

Training & On-Boarding

Flight Software

- NASA, JPL

Languages

- C, C++, python, R

Operating Systems

- Linux, VxWorks, Green Hills, Xen, Embedded With RTMS

Modern Tools

- LLVM, GCC, OpenCV, NumPy, BLAS, LAPACK, OpBLAS, enAS

HPSC Ecosystem

Software Ecosystem

Coming to a Spacecraft Near You
in mid-2025