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# OreSat Mechanical Architecture

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The OreSat mechanical architecture is a scalable 1 - 3U aluminum CubeSat structure designed to be easily manufactured in-house by university teams. OreSat takes advantage of a card cage construction for greater flexibility in the CubeSat development process. A simplistic yet effective card wedge system is incorporated into the structure to provide a modular alternative to the traditional PC/104 CubeSat stack. The mechanical architecture employs the card cage clamping mechanism for improved thermal and electrical versatility. The system also utilizes a unique approach to integrating ISS/Nanoracks compliant rail-based inhibit switches with the modular architecture. OreSat0, a technology demonstrator mission scheduled for launch in early 2022, will be the first of many CubeSats to utilize the 1U variant of the OreSat mechanical architecture. During this talk, we will discuss key structural, vibrational, and thermal considerations in the design process. Furthermore, design challenges presented in subsystems with high thermal load, rigid mounting requirements, and outwards-facing sensors will be discussed.

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