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Author: Mr. Christophe Rothmund
Snecma, France, christophe.rothmund@airbusafran-launchers.com

GENESIS OF THE VULCAIN ENGINE

Abstract

The Vulcain engine powers the current Ariane 5 launch vehicle. It started its flight life in 1996 but its origins date back to the 1970s.

Initially envisioned as a medium to high thrust upper stage engine, it went through many iterations before becoming the familiar engine of the early 21st century.

Not only its thrust, but its cycle, its arrangement and its use were subjected to a great amount of variations. It was only in 1985 that its design was frozen and its development could be started.

This paper will retrace the evolution of the engine design, from the very early ideas of a high-thrust upper stage engine to the final design.