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THE INTRODUCTION OF SAST50 MICRO-SATELLITE PLATFORM

Abstract

There is a "polarize" tendency for worldwide satellite industry that people start to pay attention to both larger and smaller satellite platforms development. Especially along with higher level of integration of aerospace products realization, smaller satellites are preferred by providing equivalent functions. Compared with the features of larger satellite platform, such as higher capacity, multipurpose application and longer life cycle, smaller ones characterize with universalization, standardization and shorter R&D (Research and Development) cycle. Micro-satellites, one type in small satellites category, have been utilized in various fields, such as data communication, data transmission, ground and space environment surveillance, navigation and positioning, and outer space scientific experiments etc. As the development of technology, there has been a steady flow of advanced micro-components invention and utilization, and this directly leads to the rapid growth of micro-satellites R&D. More space missions are able to be completed by micro-satellites and their constellations, instead of expensive large satellites. Therefore, micro-satellites have attracted more attention and have been used with increasing frequency nowadays. The advantages of micro-satellites are gradually visible for their fast technology renovation, flexible configuration and application, and low economy and technology risks. The SAST50 Micro-satellite platform is of General-Purpose platform that is designed and developed by SAST (Shanghai Academy of Space Technology). It has the features of flexible configuration, modularization and rapid-development. At the initiate design stage, the multipurpose application adaptation is considered, while modularizing product design method is adopted. The whole platform is generally divided into two different modules: subsystem module and product module. To achieve the performance variability by selecting the modules in different performance parameters, the platform is divided into different functional boards, and the interfaces of these boards are simplified. The boards are manufactured and tested at the same time, hence the AIT(Assembly, Integration, and Testing) cycle time is shorten. The Micro-satellite platform can meet the requirements of the application in Rapid Response Space, satellite networking or formation and new technology test. By the development of this micro-satellite platform, the increasing requirements are fulfilled, such as military application in tactics and battles, civil application in emergency disaster relief and information security, as well as outer space scientific exploration and technology experiments etc. The development of the SAST50 platform provided a signification reference for General-Purpose satellite platforms design.