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RESEARCH ON ACQUISITION ALGORITHM OF DYNAMIC RECONFIGURABLE MULTI-CONSTELLATION SATELLITE NAVIGATION SIGNAL ON MODULE LEVER

Abstract

To improve system compatibility, reduce system size and lower power consumption, a dynamic reconfigurable acquisition algorithm for the multi-constellation satellite navigation system is proposed in this paper. Based on the characteristics and performances of multi-constellation satellite navigation signal, the module of acquisition algorithm of navigation signal is classified in this paper according to modularization idea. And serveral configurable module units are designed, including configurable IF unit, configurable filter unit, configurable time-domain unit, configurable freqency-domain unit, and so on. Through dynamic parameters configuration and dynamic hardware resources configration, these configurable units together can implemented acquisition algorithm of all the constellations' satellite navigation signals and the acquisition algorithm system using these configurable module units is realized. Meanwhile, this system realized the data-exchange, task scheduling, resource-distribution and cooperated processing between the module units. Compared with the traditional acquisition system for multi-constellation satellite navigation signal, the proposed system needs lower resources and power conumption, smaller size, and it is more compatible, reliable and flexible.