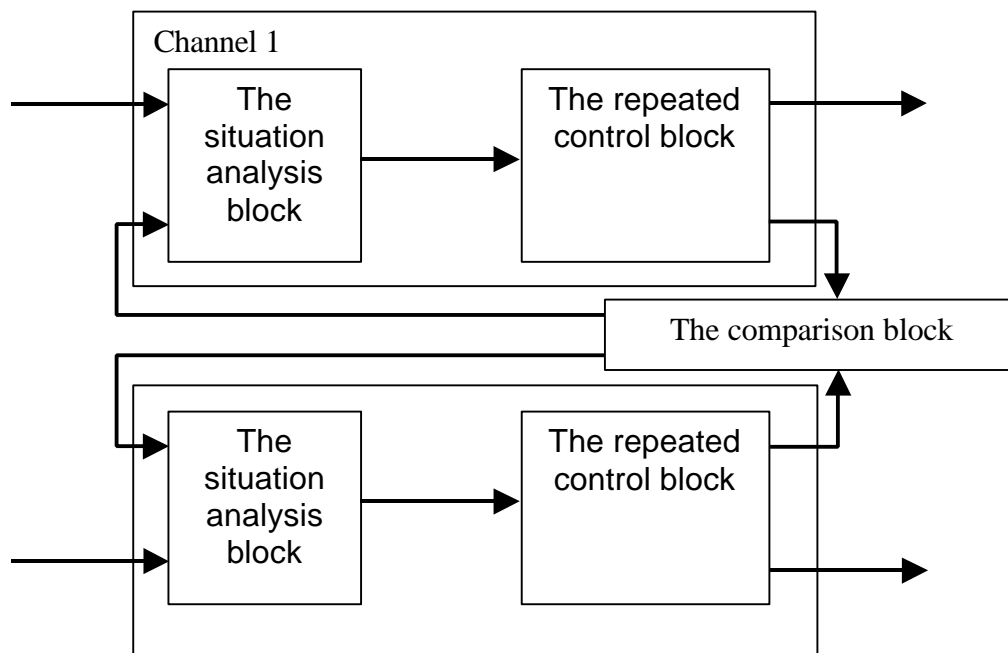


high-performance logic controlling module

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Below is the description of the construction ideology and architecture of the multichannel controlling module of the parallel action for the critical application (aircraft, space, military industry, railway transport and so on). General principles of the realization of such architectures were formulated in 80s. Now, due to intensive development of integrated technologies, and in particular FPGA, developers have got the real opportunity of a broad practical usage of these principles for construction of one-chip, self-checking superhigh-speed controlling devices, in which the interrogation of sensors and the formation of controlling influences are carried out in a parallel way, for one step of discrete automatic time.

As a matter of fact, each of channels of the controlling module represents the hard- and software realization in an obvious way of the Mile automatic machine mathematical model (see fig.). The module works asynchronously, which essentially simplifies the procedure of information interchange between channels for the comparison of calculation results. During channels design various programming languages and realization methods of controlling algorithms were used. For the prevention of failures accumulation it is possible to use the self-diagnostic block, which in case of malfunction occurrence translates the system in a protective status and gives out a warning signal.



Figure

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