

EVALUATION AND ANALYSIS OF CONNECTOR PERFORMANCE FOR THE SPACEWIRE BACK PLANE

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Short Paper

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ABSTRACT

SpaceWire interconnection using a backplane which makes system compact has been investigated. Interconnection of higher-speed signals are required due to increasing data rates from instruments. In the backplane interconnection system, high-speed signals are connected between different daughter boards via connectors and a backplane. The connectors on the backplane are key components because the impedance mismatching and the transmission loss of the connector might cause serious waveform distortions.

In this paper, connectors for the backplane, which have been selected by the space qualified design and compactness, are modeled for various cases of signal and ground pin assignment by the measurement of S-parameters. And, then, the evaluation and the analysis are carried out by the SPICE simulation of the signal transmission between daughter boards via the connectors on the backplane. It was found that the characteristic impedance of the connectors changes greatly according to the pin assignment.