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Computer/Computer Interface

A computer/computer interface synchronizes data transfer between two computers by generating data strobe pulses when the computers are ready for data transfer. In addition the interface filters noise by sampling.

The system incorporates eight bidirectional data lines connecting the two computers. There are also four timing control lines: Two of these are request lines which are unidirectional, and the other two are bidirectional response and ready lines. The time sequence of the control lines is described in the following steps; the operation is repeated for each linear bit or parallel byte:

a. The request line is asserted (turned on);
b. The assertion of the request line is sampled and synchronized;
c. The synchronized request signal allows the assertion of the return response line;
d. The return response line is synchronized and allows the assertion of the ready line;
e. The ready signal is sampled and synchronized and can be used to form a data strobe pulse for sampling the received data;
f. Upon sampling the received data, the ready signal can be used to turn off the response line;
g. The turnoff of the response line allows turnoff of the ready line;
h. The turnoff of the ready line again allows the response line to be turned on, which is conditional on the request line being on;
i. At the end of a block transmission the request line is turned off simultaneously with the ready line for the last character being turned off.

The interface is structured to recognize a signal change only when the signal remains in its new state for two consecutive clock periods after it has remained in its prior state for at least two clock periods. Thus, a noise pulse of either polarity of a duration less than two clock periods occurring at any time will not be the cause of a double data strobe pulse, nor will it interrupt the forming of a data pulse or the subsequent report level indicating that a data strobe is formed.

Note:

Requests for further information may be directed to:

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Reference: TSP75-10326

Patent status:

This invention is owned by NASA, and a patent application has been filed. Inquiries concerning nonexclusive or exclusive license for its commercial development should be addressed to:

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