Digital extremum calculator

This circuit is useful if the extreme value of a continuously changing parallel n-bit binary signal has to be calculated. The latest and the last extremes are stored, and two comparator outputs indicate whether these are maximum or minimum values.

Data is clocked into shift-register A and then transferred into shift-register B. The comparator outputs indicate whether the input from A is greater or less than B, and change state whenever an extreme occurs. The transition triggers the corresponding monostable, and the OR gate produces a pulse which enables shift register C. The output of shift register A is then stored in C. If several shift-registers are connected in series with C, and clock by the OR gate, all of the previous extremes can be stored.

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