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A NOVEL APPROACH OF LIN PROTOCOLS, SOFTWARE INTERFACE AND MULTI-LIN CONTROLLER FOR VEHICULAR APPLICATION

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Abstract

The paper presents novel approach of Multi-LIN controller in vehicle. Many network concepts are in place for the communication between the numbers of electronic modules in the vehicle. CAN is well established and the number of implemented nodes per vehicle is constantly growing. But, Increasing complexity and the need to keep costs at a minimum brought a requirement for simpler sub buses. LIN (Local Interconnect Network) bus standard is being defined for this purpose. The standard covers the transmission protocol and medium and defines tool and application programming interfaces. This Local Interconnect Network is a 12V serial communication protocol which efficiently supports the control of mechatronic nodes in distributed automotive applications. The transfer speed is up to 20 kbit/s. The author represents the design of a hardware LIN modules in Master/Slave mode and it has been implemented on cyclone II of ALTERA QUARTUS- II platform. The LIN module has been tested by development platform including small LIN network (one master and two slaves) and the results has been found satisfactory. This interface can be used in automotive emergency signals transmission in vehicular security system.

Keywords*:* LIN: Local Interconnect Network, FPGA: Field Programmable Gate Array, VHDL: Very High Speed Hardware Descriptive Language