



SIGTRAN STACK IN VLSI

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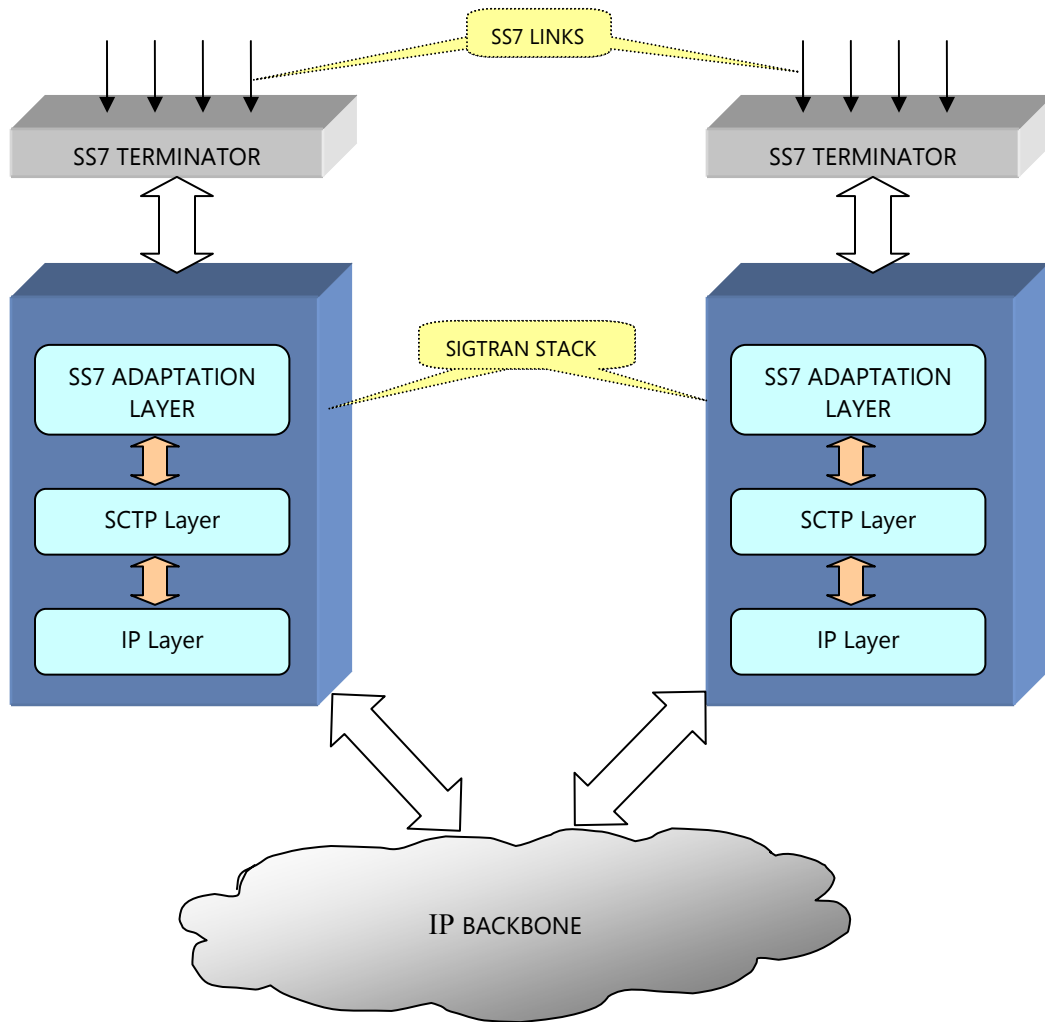
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PROBLEM STATEMENT

The idea of the project is to implement SIGTRAN stack in VLSI. SIGTRAN is a set of protocols defined to transport SS7 messages over IP network. SS7 (signaling system 7) which is used for inter-exchange signaling is traditionally carried out on trunk lines i.e. T1 and E1 lines. The SIGTRAN stack was developed in order to provide means of carrying the signaling information using the well-established IP network. The basic intention to implement the stack was so that the PSTN and SMSC can inter-work with the IP networks.

PROBLEM SOLUTION

The block diagram is as shown below.



FUNCTIONAL DESCRIPTION

1. The SMS log obtained from an SMSC is fed as payload to the user adaptation layer of the SIGTRAN stack. This layer then converts the bit stream into a form suitable for transport layer. It will be implemented in C.
2. SCTP is used as transport layer, which is used for reliable connection with peer entity. It has various advantages over TCP and so it replaces TCP in SIGTRAN stack. It will be implemented in hardware on an FPGA board using VHDL.
3. At the network layer and data link layer IP and Ethernet are used respectively. Thus, the existing IP backbone can be effectively used for signaling as well as SMS traffic. These layers would also be implemented on the FPGA board using VHDL.
4. As the peer endpoint, a Linux machine with SCTP support will be used.
5. A protocol analyzer like ETHEREAL will be used to analyze communication between the two end points.

AREA OF WORK

The basic field of work is **VLSI**. As we are dealing with SS7 protocol **TELECOMMUNICATION** and also **NETWORKING** are our secondary fields of work.