



# VLSI IMPLEMENTATION OF ASYNCHRONOUS TRANSFER MODE ARCHITECTURE CELL FOR GIGAHERTZ SWITCHING NETWORK

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**ABSTRACT:** We make use of the VLSI technology to implement this switching network from mega to gigahertz. It is a universally useful for high-speed communication in wide, neighbourhood, and framework zone networking, supporting a mixture of services from constant source. For this we use should update our conventional switch which we use in our current applications as a part of our ATM switching network.

## INTRODUCTION:

The speed is increased in this by each second between the transmission of the packets. The main part of this process is ATM switching which helps us to decrease the data traffic while transferring of data. The CLP(Communication Linking Protocol) is low to the point that ordinary estimation techniques would be inappropriate for on going operation because of the required long estimation time in a multiprocessor. Using distributed control, multistage interconnection organize structure, and modular design the multicast adjusted conventional switch includes an adaptable, high execution architecture for unicast, multicast and combine traffic under both uniform and non-uniform traffic conditions.

## COMPONENTS:

### SOFTWARE COMPONENTS:

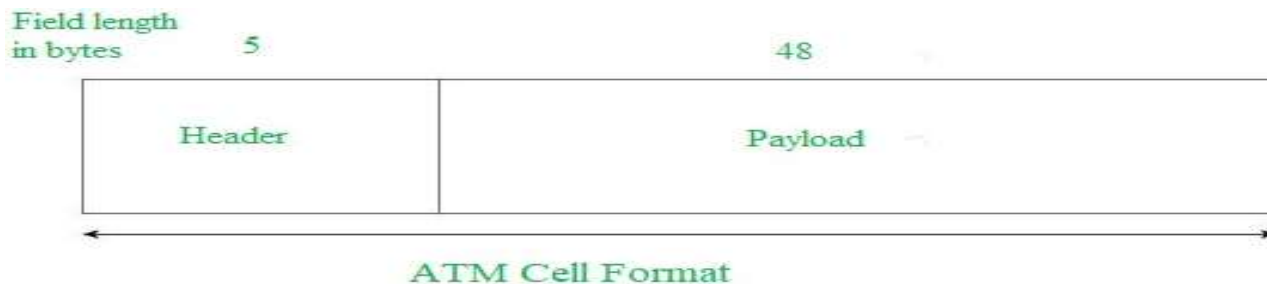
Xilinx Software

### HARDWARE COMPONENTS:

Spartan kit

**ASYNCHRONOUS TRANSFER MODE:**

ATM is switching technique that uses asynchronous time division multiplexing to encode data which uses variable packet sizes to support transmission of voice, data and video data on a single network. It carries all traffic in a stream of fixed sized packets, each with 5 bytes of header information also 48 bytes information field. This is a connection oriented service in that before two systems on the network can communicate through the intermediate switches.



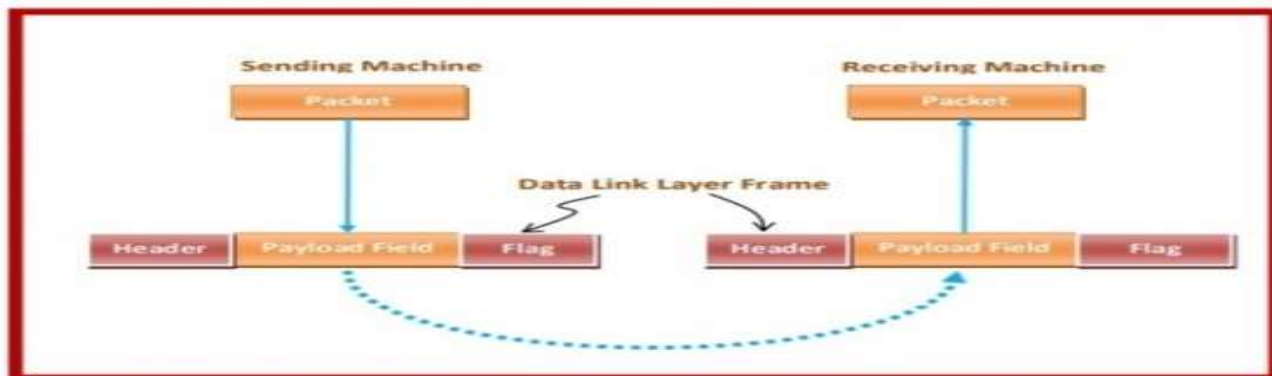
**DESIGN SPECIFICATIONS:**

Payload model

Header model

**PAYLOAD MODEL:**

This actual data which we transmit is called the payload. It contains the information and also the source and destination addresses, required for delivery of the payload. The payload is required at the destination.

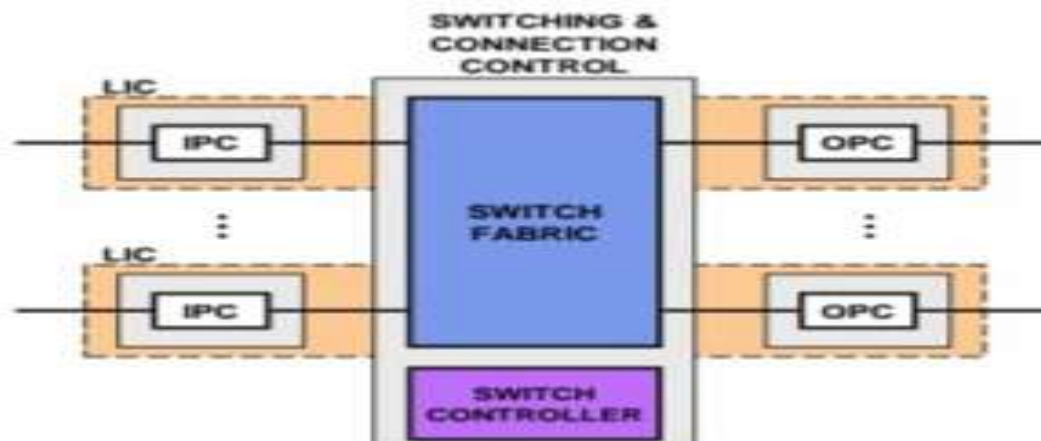


**HEADER MODEL:**

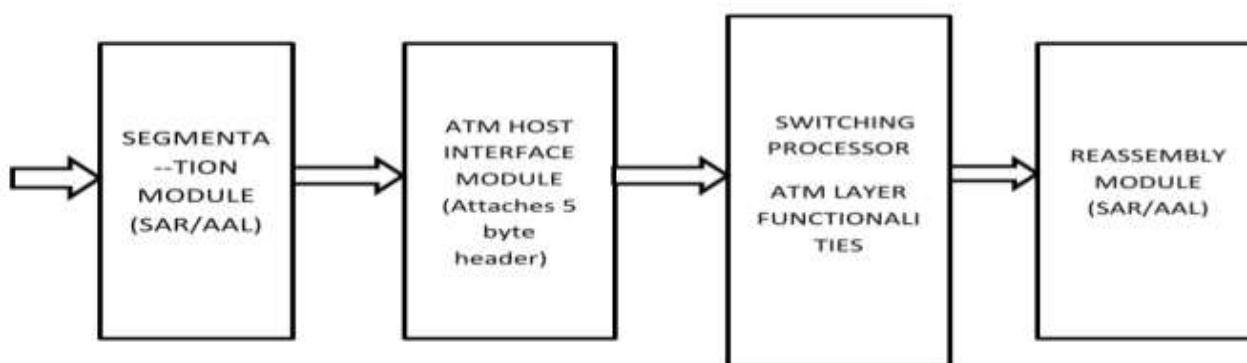
Information before the actual data is called Header. The header contains some number of bytes with control information, which is used to communicate important information..

**ATM SWITCH:**

The Switch which works on packet switching technology to allow audio, image and video over high speed single access circuit is known as ATM Switch. It separate the information into equal cells of size equal to 48 bytes and adds header before transmission. In this switch 48 bytes contain information and 5 bytes contain control information. ATM Switch differs from other switch due to high speed interface. The switch is used to implement some broadband applications as well as to take care of certain types of traffic based on priority through ATM network. The switch consists of input ports and output ports. These ports are interconnected with users, also ATM switches.



### BLOCK DIAGRAM:



### SEGMENTATION MODULE:

The Segmentation module manages segmentations. Each segmentation can contain multiple segments, which correspond to one structure. Each segment can contain multiple data representations for the same structure, and the module supports automatic conversion between these representations, as well as advanced display settings and import/export features.

### ATM HOST INTERFACE MODULE:

The component used for high speed is host interface module. The host interface depends on some call functions and to increase the performance. The advancement of high speed networks has increased demands on processor architectures.

### SWITCHING PROCESSOR:

A switching processor is an integrating circuit which has a feature set specifically targeted at the networking application domain. Network processors are software programmable devices and would have some characteristics similar to general purpose central processing units that are commonly used in many different types of equipment and products. The processing of these packets has resulted in the designing of integrated circuits (IC) that are optimised to deal with packet data.

**REASSEMBLY MODULE:**

The main feature of this reassembly module is to reassembling the ATM cells into packets for upper layer processing. All those data is in the form of packets will be received and retrieved from it. The AAL supports the convergence of different type of traffic onto ATM.

**ADVANTAGES:**

- To expand the speed of switching from mega to giga for every second
- Ensured accurate data transmission
- Low power consumption

**APPLICATIONS:**

- The present accentuation on interactive media introductions.
- Video conferencing
- Remote addressing and so far has made switches more appealing to network overseers.
- Switches capacity to give the bandwidth and quality of service ensures settles on it the conspicuous redesign decision.
- Asynchronous Transfer Mode networks have progressed toward becoming main stream for Wide Area Networks (WAN's) and additionally in LAN'S and SAN'S.

**CONCLUSION:**

By using this VLSI technology we can increase our signal strength and capacity for high speed streaming by avoiding the data traffic with low power consumption.

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