Abstract
Recent advancements in network technologies have allowed for such high bandwidths that the cabling is no longer a limiting factor. The restricting factor now becomes the router hops in between the source and destination. This paper will discuss network processors and how they can be used to increase router throughput. General processor architectures will be covered and testing results will be shared. Then some commercial products will be explained as well as benchmarking suits used to test these processors to view the increased performance. Next, current areas of research and development will be presented, such as: scheduling, load balancing, and QoS applications.

The second part of the paper will cover network co-processors. These co-processors can be thought of as intelligent network interface cards (NICs). The goal of these NICs is to offload as much network related processing as possible from the host computer to the NIC. This allows for such things as multimedia compression, encryption/decryption, firewalling, and intrusion detection all to be performed on the NIC so that the host is free to perform other functionality. The paper will cover some specific examples of using a co-processor to do multimedia processing as well as security. Lastly, we will cover some implementations of co-processors found in academia today.