# High Speed Open Channel Proposal

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## Applications

Real Time Video -

1K x 1K x 8 bit color x 24 frames/sec = 200 Mbit/s
1K x 1K x 24 bit color x 24 frames/sec = 600 Mbit/s
2K x 2K x 24 bit color x 24 frames/sec = 2.4 Gbit/s
4K x 4K x 24 bit color x 24 frames/sec = 10 Gbit/s

Movies generated in computer in slow time, replayed in real time

Watch algorithm operation in real time

General Networking for file shipping -

Process to process

Parallel processing on supercomputers

Centralized file storage

## Architectual Issues

Bandwidth -

Present networks tied to disk transfer rates and disks are getting faster.

Don't make it a small step, do it with a large enough increment to be worth while. (100 MByte/sec)
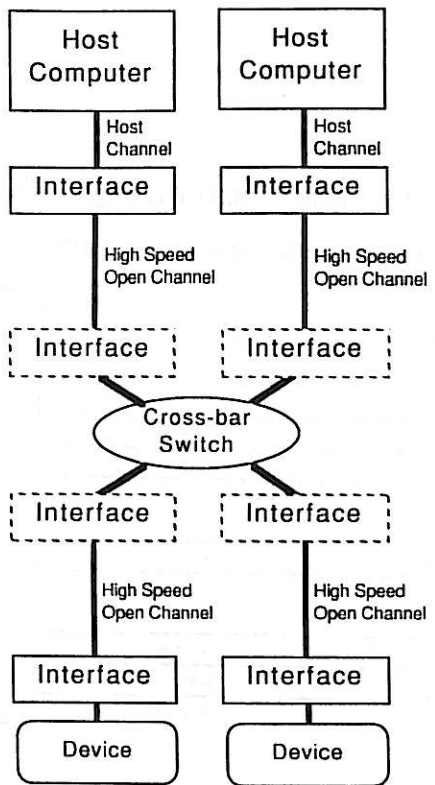
Must accomodate large packet size (about 50 KB)

Networking Capabilities -

Multiple hosts and devices connected via crossbar

Allow **simultaneous** **full bandwidth** transfers
(to support multiple video streams for movie mode)

Host Computer — Host Channel — Interface — High Speed Open Channel — Interface (dashed) — Cross-bar Switch — Interface (dashed) — High Speed Open Channel — Interface — Device

Host Computer — Host Channel — Interface — High Speed Open Channel — Interface (dashed) — Cross-bar Switch — Interface (dashed) — High Speed Open Channel — Interface — Device

## Channel Features

800 Mbit/s burst speed

50 meter basic length

Longer distances with fiber optics at greater cost (1Km without speed degradation)

Hardware flow control on 1 KByte bursts

Supports low-overhead double buffering with sustained data rates approaching burst speed
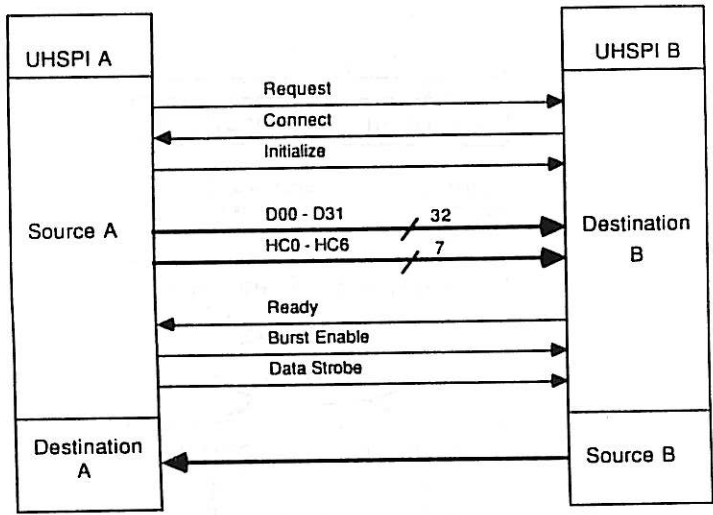
Full duplex, symmetrical, peer-to-peer

Point-to-point connections

No bidirectional signal lines

Simple physical level protocol

Easily implemented with off-the-shelf parts

B to A signals are the mirror image of A to B signals.
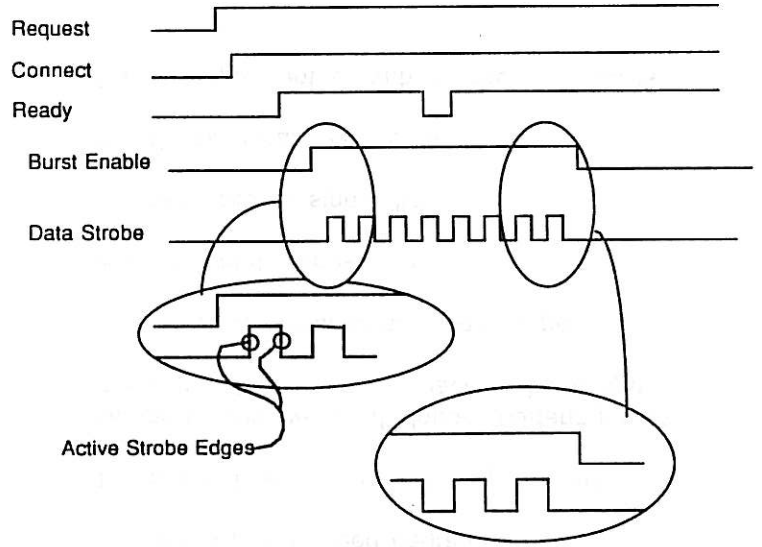
Figure 2.0.  System Functional Block Diagram



Figure 3.4.  Normal Data Transfer

## Proposal

Start a new subcommittee under X3T9

Work on new standards for:
Physical Layer
Data Link Layer

Do not do standards for:
Crossbar Switch
Long line Fiber Optic Adapter