Proposal On 80 Mega Transfers

- Basic Idea Is To Use Dual Edge Clocking
  - Keeps frequency same as 40
    -- Frequency related loss issues highest concern
Proposal On 80 Mega Transfers

- Changes:
  - 28 gauge mandatory
  - Reduce bias voltage
    - Was based on assumptions no longer valid
  - Decide on way to solve ISI problem which is also problem with NRZ data string
  - Use expanders for backplane impedance control
Proposal On 80 Mega Transfers

- **Reduce Distance**
  - Verify loss in MP and PP configurations
  - Keep loss to less than 6 db over all MP and PP configurations
  - Require 28 gauge as minimum
  - Suggest 6 m MP since this is original SCSI distance
Proposal On 80 Mega Transfers

• Reduced Bias Voltage
  – Bias voltage based on 20 microamps leakage of 16 devices
  – More realistic number 10 microamps
  – Could reduce to 30 mv (extreme lower limit)
  – Provides 70 mv more margin
Proposal On 80 Mega Transfers

- **Inter-Symbol Interference Problem**
  - Shown before that is issue with clock line
  - Using dual edge clock may be issue with data lines
  - Long 1 or 0 string may cause data to have first pulse problem
  - Propose variable strength driver to resolve this on clock
  - To be determined if needed on data lines
Proposal On 80 Mega Transfers

- Use Expanders For Backplane Impedance Matching
  - Due to impedance discontinuity expander is solution at these frequencies (with retiming)
  - Cost usually not an issue with backplanes and complex systems
Proposal On 80 Mega Transfers

• Concerns:
  – DC bias due to NRZ code
    -- NRZ code with long 1 or 0 string may not be detected on first transition

  – Possible solutions
    -- Try to eliminate with multi-strength drivers on each data line

    -- Could be eliminated with encoding, but would reduce transfer rate and increase gate count
Proposal On 80 Mega Transfers

• Concerns:
  – Setup and hold timing
    -- Reduced by half, since data frequency 2X
  – Possible solutions
    -- Reason to reduce distance is to cut data line to clock line skew
    -- High quality cables
    -- Or could consider compensation scheme as done in HIPPI but would require changes to way data phase done
Proposal On 80 Mega Transfers

SKEW

Single Edge Clock

40 MT

Data

setup

hold

40 MT

Clock

Dual Edge Clock

80 MT

Data

setup

hold

80 MT

Clock