

## Comparison between source routing & bit mapped routing

Recorded from the P1394.1 working group discussion on 6/10/99 after the presentation of document BR050R01, "Simple Routing Method".

1. Maximum network size
  - A. source routing
    - 1) without encapsulation:
      - a) 9 hops @ 3 portals/bus
      - b) 5 hops @ 7 portals/bus
    - 2) with encapsulation, can have much more
  - B. bit map
    - 1) 1023 buses, 63 portals/bus
2. High speed routing circuitry complexity (decide whether to ack\_pending)
  - A. source: smaller (example: 5 bit comparator)
  - B. bit map: larger (10 bit decoder + bitmap)
3. Mid speed routing circuitry complexity (decide whether to forward or synthesize response packet)
  - A. source:
    - 1) some (check source bus\_id, replace 20 bits with value from table (index), or rotate 20 bits)
    - 2) terminal bus:
      - a) if label=all ones, then search table & replace source bus\_id with index & dest bus\_id with 3FF – if not in table, add to table (& deal with running out of table entries in TBD fashion)
  - B. bit map:
    - 1) check source bus\_id, replace source bus\_id with real bus\_id if was 3FF
    - 2) terminal bus: replace dest bus\_id with 3FF
4. Setup algorithm complexity
  - A. source
    - 1) establish spanning tree
    - 2) establish net cycle master
  - B. bit map
    - 1) establish spanning tree
    - 2) establish net cycle master
    - 3) path set up once at net setup (or re-setup) time
5. Other
  - A. source
    - 1) more destruction on victim bus, plus sometimes some destruction on survivor bus
    - 2) no prime portal required
    - 3) node\_id not same everywhere in network
    - 4) path setup is connection oriented (set up for conversation – includes ARP)
  - B. bit map
    - 1) less destruction on victim bus in some cases
    - 2) bus\_id allocation requires prime portal
    - 3) 16 bit node\_id is valid everywhere in network
    - 4) needs more transactions to deal with merged bus than source routing