Bridge specifications for IR-fabric bridge

Proposal for P1394.1 working group on April 27 and 28

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Agenda

1. Introduction
2. IEC proposal

   Transmission systems for IEEE1394 using infra-red radiation.

3. Features of IR-fabric bridge
4. Conclusion

Introduction

We proposed IR-1394 systems to IEC SC100C WG17 at Redhill.

These systems use P1394.1 bridge topology.

We explain the proposal of IR-1394 systems and relation to our previous proposal.

Features of IR-fabric bridge

1. Sub-carrier frequency allocation.

   IR-1394 transmission can coexist with other infra-red systems.

2. Star form topology.

   IR-1394 root node can control many leaf (controlled) nodes.

3. Transmission protocol is based on IEEE1394 bridge.

   Infra-red fabric doesn’t need to use arbitration.

   When infra-red signals are blocked off, it doesn’t cause bus reset.

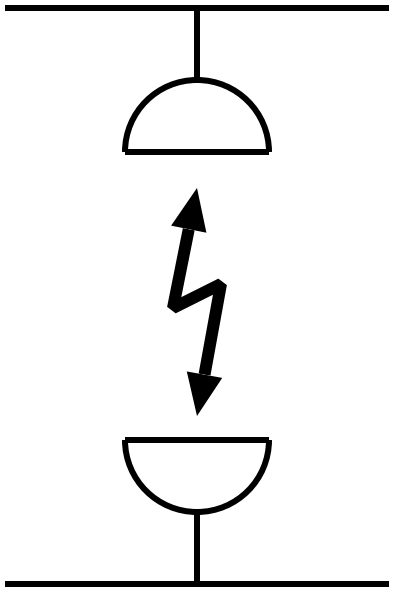
1394 bridge compatible

IR-fabric bridge is based on IEEE1394 bridge protocol, but there are two requirements.

1. Bandwidth reservation

2. Cycle propagation

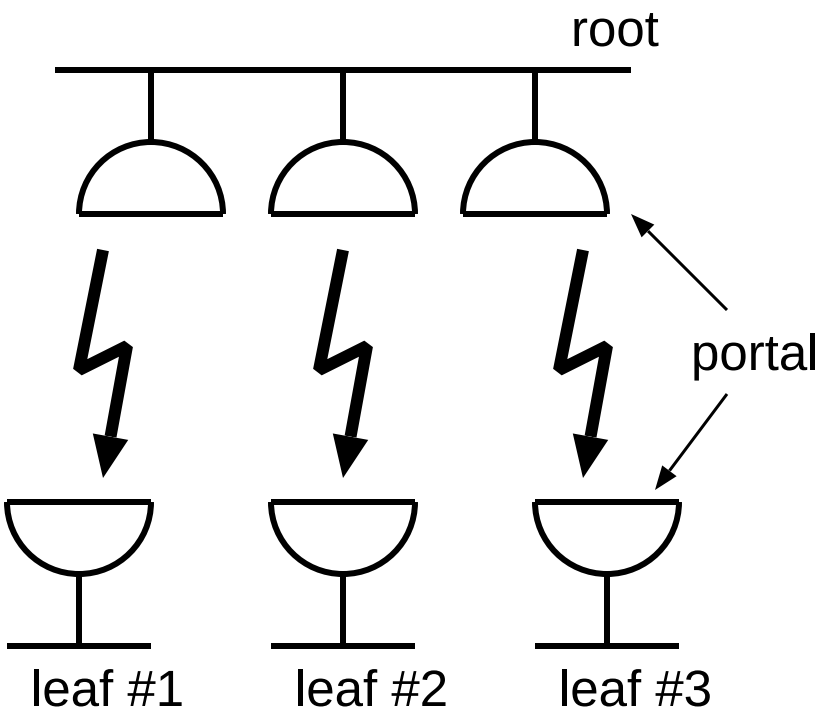
IR-fabric bridge : bandwidth reservation



Transfer rate of IR-fabric bridge is 25, 50 or 100 Mbps.
These rates are slower than the rate at which a bus can transmit.

Bandwidth reservation is necessary.

IR-fabric bridge : cycle propagation



If net cycle master is connected to leaf #1, cycle start should pass fabric twice.

One way cycle propagation from root to leaf reduce jitter of cycle and save bandwidth.

Conclusion

We explained the proposal of IR-1394 system and concepts of IR-fabric bridge.

IR-fabric bridge is based on IEEE1394 bridge protocol.

We proposed two requirements.

We proposed this system to IEC SC100C WG17 on April 23 and 24.