IEEE P1394.1 SCAT

SCAT tasks with commentary

1) Multiple bridges may actively connect a pair of buses (loop topology).
   Approved motion: Between any two buses there shall be only one path for async traffic. [Original wording: Async routing decisions shall be based only on destination bus_id]
   Noted: We are not limiting the number of physically present bridges, just which are enabled in the routing.

2) Asynch response & request packets shall follow the same path.
   (Covered by the decision in item 1.)

3) Sub-net architecture
   On hold. It was noted that the virtual node id concept would eliminate the proposer's desire for subnets.

4) Setting-up of the routing table (vs. routing bounds as in draft v0.3)
   Partly designed, needs more design & text.

5) Virtual Node Ids
   Text is in draft 0.04 Needs review.
   Peter Johansson & David Wooten volunteered to work on this.
   - Handle change of alpha portal
   - Synchronization of virtual node id maps between portals
   - Store bus_id value in bus_id field of NODE_IDS register in non-portal nodes, or leave 3FF
   - Reassign same virtual node id (if possible) when reconnect a device
   - Time to not re-use virtual node id is from:
     - disconnect, or
     - last packet addressed to the id, if any after disconnect

6) Clock synchronization via go-fast, go-slow mechanism
   Consensus: Use preallocated isoch channel method. The tag or sy header field will indicate go-fast or go-slow. All P1394.1-aware and P1394b nodes that are cycle master capable must be IRM capable and handle these adjustment commands. Node must indicate that it supports the commands in its config rom. P1394.1 specification will predefine a channel number. The cycle master/root must preallocate this channel & bandwidth before making the channels / bandwidth available registers available after reset.

7) Quarantine
   (This is part of time of the death task, item 9.)

8) Device/Node discovery mechanism
   (Wait until the virtual node id stuff is done.)

9) Async packet time-of-death
   (This includes split timeout.)
   Text is in virtual node ids draft document.
   Consensus so far:
   - no wrapper
   - each bridge has a limit for how long it may take to forward a packet
     - fixed?
     - configurable?
     - use split timeout value of bus the bridge accepted the packet from?

- use split timeout value of bus the bridge is placing the packet on?

10) Arbitration fairness
Consensus: All bridge portals shall implement 1394a unfair arbitration.
Peter Johansson to add text to draft.

11) Reset notification
(Wait until the virtual node id stuff is done.)

12) Isoch timestamp adjustment
Text from SBP-2 was inserted in P1394.1 draft 0.03. This will need some updating to reflect bus times only frequency locked.

13) Initial & forwarding speed of async packets, and maximum packet size
Simple method proposed in document BR047R00. If people want something more capable, they can write a proposal.

14) Commands & responses
a) Delivery mechanism
P1212r has discussed enhancing the message passing mechanisms.
P1394.1 discussed what requirements we may have for P1212r, consensus was "not much".
Needs design & text.
b) Actual list of commands & responses
Wait until the functions using commands are better defined.
Build as various sections are done
c) Command model
Consensus: We will use a command model for bridge setup & control rather than CSR model.

15) Role of bridge manager
Inclusive list of possibilities recorded. We will try not to have a bridge manager.

16) Congestion
Proposal in document BR047R00. Needs review.

17) Virtual bus behavior (wireless)
This topic is handed off to the people who want to work on nonstandard physical layers, and closed in this working group.

18) Handling of short interruptions (wireless)
This topic is handed off to the people who want to work on nonstandard physical layers, and closed in this working group.

19) Minimum requirements for remote transaction capable nodes
Inclusive list of possibilities recorded.

20) Response packet synthesis
Proposal in document BR047R00.

21) Error & retry handling
Dave James & Peter Johansson volunteered to work on this.

22) Eavesdropping (packets addressed to self)
Concept agreed. Needs to be written in the specification.

23) Isoch connection management
Toguchi-san will work on design & some specification text.

24) EUI-64 per bridge or per portal
Consensus: There shall be a separate EUI-64 for each portal of a bridge.
Peter Johansson to put (one sentence???) in draft.

25) Should bridges be smart enough to not require a separate bridge manager?
Consensus: Try to do this, if possible.

26) Maintain order of subactions through bridges
Consensus: This will not be required. Peter Johansson to add clarifying comment in draft.

27) Go-fast / go-slow duration
Should go-fast / go-slow stay in effect for: one cycle, n cycles, until another command is received? Decided: Only in effect for the current cycle. Need to add text (in conjunction with item 6 above).

28) Async stream format
Approved motion to recommend to P1394a to include in that specification.

29) Isoch required or optional
We need to decide whether all bridges will be required to route isochronous traffic, or if the capability will be optional.

30) Identify portals during self-id
Peter Johansson volunteered to determine the best way to identify bridge portals during self-id.

31) Virtual node id lifetime issues
Resolve issues regarding the lifetime of virtual node ids, including whether bridge forwarding time limits should be variable or fixed..

32) Net clock source preference
Should any device be given preference in the selection of a net clock source? If so, how is this done?

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SCAT summary

	Task	Status	Assigned to
1.	Multiple bridges may actively connect a pair of buses (loop topology).	Decided	
2.	Asynch response & request packets shall follow the same path	Decided	
3.	Sub-net architecture	Hold	(pending task 5)
4.	Setting-up of the routing table (vs. routing bounds as in draft v0.3)	In progress	Wooten
5.	Virtual Node Ids	Written	Johansson, Wooten
6.	Clock synchronization via go-fast, go-slow mechanism	Decided, needs text	
7.	Quarantine	Closed	(part of task 9)
8.	Device/Node discovery mechanism	Wait	(pending task 5)
9.	Async packet time-of-death	Closed	
10.	Arbitration fairness	Decided, needs text	Johansson
11.	Reset notification	Wait	(pending task 5)
12.	Isoch timestamp adjustment	Done	Johansson
13.	Initial & forwarding speed of async packets, and maximum packet size	Partly decided	
14.	Commands & responses a) Delivery mechanism b) Actual list of commands & responses c) Use command model	 In progress Ongoing Decided	James
15.	Role of bridge manager	Closed	
16.	Congestion	Proposal – needs review	James
17.	Virtual bus behavior	Closed	wireless group
18.	Handling of short interruptions	Closed	wireless group
19.	Minimum requirements for remote transaction capable nodes	Building list	James (ed)
20.	Response packet synthesis	Proposal	James, Johansson
21.	Error & retry handling	In progress	James, Johansson
22.	Eavesdropping (packets addressed to self)	Decided	
23.	Isoch connection management	In progress	Toguchi
24.	EUI-64 per bridge or per portal	Decided	Johansson
25.	Should bridges be smart enough to not require a separate bridge manager?	Closed	
26.	Maintain order of subactions through bridges	Decided	Johansson
27.	Go-fast / go-slow duration	Decided	
28.	Async stream format with modifiable source id	Closed	Passed to P1394a
29.	Isoch required or optional	Open	
30.	Identify portals during self-id	Open	Johansson
31.	Virtual node id lifetime issues	Open	
32.	Net clock source preference	Open	