

IEEE P1394.1 SCAT

SCAT summary, sorted by status

Task	Task title	Status	Assigned to
11.	Reset notification	Wait	(pending tasks 4&5)
4.	Setting-up of the routing table	Open	
7.	Quarantine	Open	
8.	Device/Node discovery mechanism	Open	
14.a.	Commands & responses - Delivery mechanism	Open	James
14.b.	Commands & responses - Actual list of commands & responses	Open	
16.	Congestion	Open	
19.	Minimum requirements for remote transaction capable nodes	Open	James (ed)
20.	Response packet synthesis	Open	James
21.	Error & retry handling	Open	James
23.	Isoch connection management	Open	Toguchi
29.	Isoch required or optional	Open	
33.	Isoch routing always follow async	Open	
34.	Response handling on bus renumber	Open	
35.	Notification mechanism to bridge-aware devices	Open	
36.	Suspend / resume	Open	
37.	Net Reset on split?	Open	
38.	Forwarding time limit in bridges	Open	
39.	Network management hooks	Open	
1.	Multiple bridges may not actively connect a pair of buses	Closed	
2.	Asynch response & request packets shall follow the same path	Closed	
3.	Sub-net architecture	Closed	
5.	Virtual Node Ids	Closed	Johansson, Wooten
6.	Clock synchronization via go-fast, go-slow mechanism	Closed	
9.	Async packet time-of-death	Closed	
10.	Arbitration fairness	Closed	Johansson
12.	Isoch timestamp adjustment	Closed	Johansson
13.	Initial & forwarding speed of async packets, maximum packet size	Closed	
14.c.	Commands & responses - Use command model	Closed	
15.	Role of bridge manager	Closed	
17.	Virtual bus behavior	Closed	wireless group
18.	Handling of short interruptions	Closed	wireless group
22.	Eavesdropping (packets addressed to self)	Closed	
24.	EUI-64 per bridge or per portal	Closed	Johansson
25.	Not require a separate bridge manager?	Closed	
26.	Maintain order of subactions through bridges	Closed	Johansson
27.	Go-fast / go-slow duration	Closed	
28.	Async stream format with modifiable source id	Closed	Passed to P1394a
30.	Identify portals during self-id	Closed	Johansson
31.	Virtual node id lifetime issues	Closed	
32.	Net clock source preference	Closed	

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39.	Network management hooks	Open	

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SCAT detail

- 1) Should multiple bridges be allowed to 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
Closed. It was noted that the virtual node id concept eliminated 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
Is quarantine the right way to prevent nodes from using stale addresses? If so, fill in details.
- 8) Device/Node discovery mechanism
(Wait until the virtual node id stuff is done.)

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- 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
If request cannot be forwarded within $T_{\max_req_fwd}$ then do not fwd, & synthesize error response. Response must go within $T_{\max_req_fwd} + T_{\max_rsp_fwd} + T_{split_timeout}$, where $T_{split_timeout}$ is \geq the split timeout on the terminal bus. It is permissible to use a shorter number if an implementation wishes, as long as it is not less than $T_{\max_req_fwd} + T_{\max_rsp_fwd} + T_{\min_split_timeout}$, where $T_{\min_split_timeout}$ is the minimum split timeout allowed by 1394 (100 ms). Drop response packets that cannot be forwarded within $T_{\max_rsp_fwd}$.
Open issues: What should we say about split timeout on all buses
- a) assume 8 seconds worse case
 - b) assume 1 second
 - c) assume 100 ms (not acceptable, even with 1394-1995)
 - d) deal with variable values with notification to other bridges
 - e) etc.

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- 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
Dave James has proposed text in BR047R06. A few changes are needed.
- 21) Error & retry handling
Dave James has proposed text in BR047R06. A few changes are needed. Need to work on busy retry strategy, advise implementers about special cases to deal with.
- 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.
Done – text in draft 0.04. Bit in 2nd quadlet in 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.
Resolution: Virtual node ids live until net reset. Forwarding time becomes item 38.

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- 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?
Decision: Net clock source will be cycle master of prime bus
- 33) Isoch routing always follow async
Should isochronous routing always follow the async routing? If async routing changes, must isoch streams (everywhere / just through the affected areas) be rerouted (torn down & rebuilt)? Consider case of non-default / optimized async routings.
- a) Always follow async
 - b) Follow async during stream setup, & "grandfather" thereafter
 - c) Never required to follow async
- 34) Response handling on bus renumber
How is a response packet handled if the bus of the responder is renumbered during the time between when the responder receives the request and when it sends the response? Must deal with both bridge aware devices and legacy devices.
- 35) Notification mechanism to bridge-aware devices
Define a mechanism for notifying bridge-aware devices of various events, statuses, etc. Define the events, statuses, etc., along with required behavior. Consider what things need the synchronization given by a bus reset, and what can get along with a more asynchronous notification (with respect to packets already in the device's FIFOs).
- 36) Suspend / resume
Figure out how suspend / resume interacts with a bridged network.
- 37) Net Reset on split?
Do we need to do a Net Reset when a net is split into two subnets? The objective is to not have to renumber all buses when the subnets are reconnected.
- 38) Forwarding time limit in bridges
Decide how forwarding time in bridges will be limited. Will it be fixed, variable, ...?
Variable within a bridge, between bridges, etc.?
- 39) Network management hooks
Decide whether there should be hooks defined in P1394.1 to support optional network management products. If so, decide what hooks to include.