

Apple Late 1991 CAM Proposals Summary

Previous Proposals

1. Disconnect I/O Function Code

This CCB would request that a current I/O process be Disconnected (through the use of the Disconnect message). Originally, this was proposed so that a higher priority request would not have to wait for the use of the bus if there was a lengthy transaction in progress. During the September Working Group in St. Paul, we discussed an alternative proposal which more directly addresses the original requirement (see below). However, some of our engineers feel that this original proposal is still desired to "round-out" the CAM spec.

2. SCSI I/O Request Timeout resolution change

We have proposed changing the resolution of the timeout to something more fine than seconds — 100 μ S or 1mS.

3. Connection_ID

Four byte-wide fields in the standard CCB — reserved, Path_ID, Target_ID and LUN can be grouped together into a "Connection_ID" which serves a more general driver/device connection identification for possible use in future environments. The reserved field must be specifically reserved for future path related values.

4. Addition of Version Number in all CCBs

In the interest of allowing future enhancements to CAM, it was felt that there should be some mechanism allowing for changes to the API while retaining backward compatibility with drivers written for earlier versions. There were two mechanisms considered for this:

5. Require every client of the XPT to register itself with the XPT. The registration would include a "working version number" which, in effect is the highest SIM/API version that the client is aware of. This client would then be granted a "Client_ID" which it would place in a Client_ID field in the CCB header whenever that client submitted a request. The XPT/SIM would determine which version of the API is expected to handle the request by referencing the Client Registration table and would parse and performed according to the rules of that version.

6. Add a Version number field to the CCB header. This would designate the SIM/API version that the client assumed was present when processing the CCB. A client would have the responsibility of determining the SIM version and submitting only CCBs less than or equal to that value. As above, the XPT/SIM would handle the request according to the rules of the version specified.

7. Path_ID renaming - proposal withdrawn

New Proposals/Discussion Items**8. Variable Selection Timeout**

It may not seem quite kosher but we have had requests from customers for a variable SCSI bus Select timeout (currently recommended by SCSI-2 to be 250mS). If such a field were placed in the SCSI I/O Request CCB, it should be capable of up to 1 second timeouts. A 1 byte field would then require a resolution of 4mS. A value of zero would default to 250mS.

9. Addition of "Disconnect Current" bit to SCSI I/O Request CCB

This was the second proposal to address the high priority — kick the hog off the bus — issue. In this implementation, when a new CCB with this new bit set is delivered to the SIM, the SIM would, if necessary, disconnect a current I/O in order to send the new I/O as soon as possible.

10. SCSI I/O Request CCB Timeout field details

We would like to request that additional detail be placed in the specification regarding the Timeout field in the SCSI I/O Request CCB. In particular, the exact point at which the timeout begins must be defined as well as the actions to take when the timeout occurs. For instance, what should happen if it times-out under various situations/states possible during the transaction (i.e. waiting for reselection on that CCB, while sending command, while receiving final status or message, etc.).

11. Need some provision for initiating a rescan

There does not appear to be a mechanism that can be used by a driver to initiate a rescan and consequent rebuilding of the Device Table.