

IEEE Standards Interpretations for IEEE Std 1003.1b™-1993 IEEE Standard for Information Technology - Portable Operating System Interfaces (POSIX(R)) - Part 1: System Application Program Interface (API) - Amendment 1: Realtime Extension [C language]

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Interpretation Request #10

Topic: `_POSIX_PRIORITIZED_IO` part 2 **Relevant Sections:** 6.7.1.1, Page 152-153, Lines 729-732 **Classification:** (to be assigned)

Regarding the option identified by `{_POSIX_PRIORITIZED_IO}`, the statement says "When prioritized asynchronous I/O requests to the same file are blocked waiting for a resource required for that I/O operation, the higher-priority I/O requests shall be granted the resource before lower-priority I/O requests are granted the resource." The statement does not address a common situation involving multiple files and a single resource. If prioritized asynchronous I/O requests to DIFFERENT files are blocked waiting for the SAME resource, shall higher-priority I/O requests be granted that resource before lower-priority I/O requests, regardless of which file? It only seems logical, given the effect which this option is intended to achieve - scheduling async I/O based on priority; it seems that the writers didn't consider the very obvious situation of a physical disk (resource) which implements several files.

Assuming that the interpretation answers "yes" to the above question, I suggest that the semantics of the Prioritized I/O option be clarified to explicitly address the case of multiple files per device, indicating that the prioritization of granting the resource (device) is still priority based, and not undefined as it is now.

Interpretation Response

The standard is silent on the question of the relative ordering of requests to different devices. A conforming system is not constrained by the standard as to which order to handle the requests and a conforming applications must be able to handle any ordering.

Rationale for Interpretation

The interpretations committee believes that this was the intent of the working and balloting group in this area in order to avoid additional complexity and problems with devices that the groups were not familiar.