IEEE Standards Interpretations for IEEE Std 1003.1c™-1995 IEEE Standard for Information Technology--Portable Operating System Interface (POSIX(R)) - System Application Program Interface (API) Amendment 2: Threads Extension (C Language)

Interpretation Request #29
Topic: Get scheduling parameter limits **Relevant Clauses:** 13.3.6

The standard fails to formalize the dependency of _POSIX_THREAD_PRIORITY_SCHEDULING on _POSIX_PRIORITY_SCHEDULING. That is, a conforming implementation could choose to support the latter but not the former. That was intentional, BUT, there really is a "hidden" dependency... to use thread priority scheduling one must call sched_priority_get_min() and/or sched_priority_get_max() to determine the legal priority range for any policy. And those functions are required only under _POSIX_PRIORITY_SCHEDULING, and therefore might not exist.

I would suggest one of three solutions:

1) require _POSIX_PRIORITY_SCHEDULING if the implementation supports _POSIX_THREAD_PRIORITY_SCHEDULING, or,
2) sched_priority_get_min/_max must be required if EITHER option is supported, or,
3) go back to the wording in one of the earlier drafts, where there was no separate thread priority scheduling option at all -- the thread scheduling functions were present IFF the system supported threads and priority scheduling.

Option 2 is likely to be the least contentious of the three, and it's certainly sufficient.

Interpretation Response
The standard is clear in 13.2 that priorities shall be in the range defined for the policy and in section 13.3.6 it only requires the sched_get_priority_max and sched_get_priority_min function if _POSIX_PRIORITY_SCHEDULING is defined. The standard's con-

formance requirement upon these functions when that option is not defined is only that if the functions are provided, they shall be provided as specified or they shall fail. The standard is also clear that the _POSIX_THREAD_PRIORITY_SCHEDULING option does not require that the sched_get_priority_max and sched_get_priority_min functions be defined. The interpretations committee believes that not requiring the definition of these functions may make the _POSIX_THREAD_PRIORITY_SCHEDULING option less useful and was not the intention of the working and balloting groups. This is being referred to the sponsor for consideration.

Rationale for Interpretation
None.