

IEEE Standards Interpretation for IEEE Std 1003.1™-1990 IEEE Standard for Information Technology--Portable Operating System Interfaces (POSIX®)

Copyright © 2001 by the Institute of Electrical and Electronics Engineers, Inc. 3 Park Avenue New York, New York 10016-5997 USA All Rights Reserved.

Interpretations are issued to explain and clarify the intent of a standard and do not constitute an alteration to the original standard. In addition, interpretations are not intended to supply consulting information. Permission is hereby granted to download and print one copy of this document. Individuals seeking permission to reproduce and/or distribute this document in its entirety or portions of this document must contact the IEEE Standards Department for the appropriate license. Use of the information contained in this document is at your own risk.

IEEE Standards Department Copyrights and Permissions 445 Hoes Lane, Piscataway, New Jersey 08855-1331, USA

### Interpretation Request #56

**Topic:** asynchronous terminals layered **Relevant Sections:** 7.1 **Classification:** No Change **Category:** The unambiguous situation; the standard says what it says

Consider the case of an implementation of POSIX.1 that runs on a hardware platform where the hardware has physical asynchronous communication ports. The POSIX.1 implementation does not provide access to the asynchronous communication ports even though the hardware exists. The implementation does provide the general terminal interface as specified in Section 7, in the manner defined for an implementation that does not have asynchronous communication ports. The POSIX.1 implementation treats these ports as if they do not exist at all: there is no support to `open()`, `read()`, or `write()` the ports.

The two interpretations we request are:

1. Does such an implementation conform to the requirements of POSIX.1?
2. Does such an implementation conform to POSIX.1 if it is layered on another operating environment and that base environment does provide support for the asynchronous communication ports, although it does not make them accessible to the POSIX.1 environment?

Rationale I believe that the answer to both of these questions is “yes”. Just as there is freedom in POSIX.1 for the implementor to decide that a hardware platform will be built without serial ports, there is freedom to define the scope of the integrated hardware/software implementation such that it does not encompass all the facilities available on the hardware. The central question is whether the term “implementation” as used in 7.1, applies to the hardware or to the hardware/software system. My understanding is that POSIX.1 consistently uses “implementation” in a general sense to avoid constraining how particular functionality is provided, so the hardware/software interpretation is the correct

one.

**Interpretation Response**

Such an implementation does conform to the requirements of POSIX.1. Section 7.1 is quite clear about support being contingent upon the implementation providing asynchronous communications ports. The implementation is not required by the Standard to provide these ports, regardless of hardware or underlying OS (in the “hosted” case).

**Rationale for Interpretation**

None.