U.S. DEPARTMENT OF COMMERCE
Technology Administration
National Institute of Standards and Technology

FIPS

FIPS PUB 158-1

FEDERAL INFORMATION PROCESSING STANDARDS PUBLICATION
(Supersedes FIPS PUB 158 – 1990 May 29)

THE USER INTERFACE COMPONENT OF THE APPLICATIONS PORTABILITY PROFILE

CATEGORY: SOFTWARE STANDARD
SUBCATEGORY: APPLICATION PROGRAM INTERFACE

1993 October 8

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Computer Systems Laboratory
National Institute of Standards and Technology
Gaithersburg, MD 20899

Issued October 8, 1993

Foreword

The Federal Information Processing Standards Publication Series of the National Institute of Standards and Technology (NIST) is the official publication relating to standards and guidelines adopted and promulgated under the provisions of Section 111(d) of the Federal Property and Administrative Services Act of 1949 as amended by the Computer Security Act of 1987, Public Law 100-235. These mandates have given the Secretary of Commerce and NIST important responsibilities for improving the utilization and management of computer and related telecommunications systems in the Federal Government. The NIST, through its Computer Systems Laboratory, provides leadership, technical guidance, and coordination of Government efforts in the development of standards and guidelines in these areas.

Comments concerning Federal Information Processing Standards Publications are welcomed and should be addressed to the Director, Computer Systems Laboratory, National Institute of Standards and Technology, Gaithersburg, MD 20899.

James H. Burrows, Director
Computer Systems Laboratory

Abstract

This publication announces the adoption of the X Protocol, Xlib Interface, Xt Intrinsics and Bitmap Distribution Format specifications of the X Window System, Version 11, Release 5 (X Window System is a trademark of the Massachusetts Institute of Technology (MIT) as a Federal Information Processing Standard. This FIPS is identical to FIPS 158, except that the specification is updated from Release 3 to Release 5 of the X Window System, Version 11. This standard is for use by computing professionals involved in system and application software development and implementation. This standard is part of a series of specifications needed for application portability. This standard covers the Data Stream Encoding, Data Stream Interface, and Subroutine Foundation layers of the reference model. It is the intention of NIST to provide standards for other layers of the reference model as consensus develops within industry. This standard addresses the user interface functional area of the Applications Portability Profile (NIST SP 500-87).

Key words: applications portability profile; Federal Information Processing Standard (FIPS); POSIX; open systems; window systems; X Window System.

Federal Information
Processing Standards Publication 158-1

1993 October 8

Announcing the Standard for

THE USER INTERFACE COMPONENT OF THE
APPLICATIONS PORTABILITY PROFILE

1. Name of Standard.   The User Interface Component of the Applications Portability Profile (FIPS PUB 158-1).

2.   Category of Standard: Software Standard, Application Program Interface.

3. Explanation.   This publication announces the adoption of the X Protocol, Xlib Interface, Xt Intrinsics and Bitmap Distribution Format specifications of the X Window System, Version 11, Release 5 (X Window System is a trademark of the Massachusetts Institute of Technology (MIT)) as a Federal Information Processing Standard. This FIPS is identical to FIPS 158, except that the specification is updated from Release 3 to Release 5 of the X Window System, Version 11. This standard is for use by computing professionals involved in system and application software development and implementation. This standard is part of a series of specifications needed for application portability. This standard covers the Data Stream Encoding, Data Stream Interface, and Subroutine Foundation layers of the reference model. It is the intention of NIST to provide standards for other layers of the reference model as consensus develops within industry. This standard addresses the user interface functional area of the Applications Portability Profile (NIST SP 500-187).

4. Approving Authority.   Secretary of Commerce.

5. Maintenance Agency.   U.S. Department of Commerce, National Institute of Standards and Technology (NIST), Computer Systems Laboratory.

6. Cross Index.   The X Window System, Version 11, Release 5.

7. Related Documents.
   a.   Federal Information Resources Management Regulations subpart 201-20.303, Standards, and subpart 201-39.1002, Federal Standards.
   b.   FIPS 160, Programming Language C.
   c.   FIPS 151-2, POSIX: Portable Operating System Interface (POSIX) – System Application Program Interface [C Language].
   d.   Applications Portability Profile (NIST SP 500-187).

8. Objectives.   This FIPS permits Federal departments and agencies to exercise more effective control over the production, management, and use of the Government's information resources. The primary objectives of this FIPS are:

   a. To promote portability of computer application programs at the source code level.
   b. To simplify computer program documentation by the use of a standard portable system interface design.

c. To reduce staff hours in porting computer programs to different vendor systems and architectures.

d. To increase portability of acquired skills, resulting in reduced personnel training costs.

e. To maximize the return on investment in generating or purchasing computer programs by insuring operating system compatibility.

f. To provide ease of use in computer systems through network-based bit-mapped graphic user interfaces with a consistent appearance.

Governmentwide attainment of the above objectives depends upon the widespread availability and use of comprehensive and precise standard specifications.

9. Applicability. This FIPS shall be used for network-based bit-mapped graphic systems that are either developed or acquired for government use where distributed/networked bit-mapped graphic interfaces to multi-user computer systems are required.

10. Specifications. The specifications for this FIPS are the following documents from the X Window System, Version 11, Release 5. These specifications define a C language source code level interface to a network-based bit-mapped graphic system. The computer program source code contained in Version 11, Release 5 is not part of the specifications for this FIPS. The specifications for this FIPS are the following documents from X Version 11, Release 5:

a. X Window System Protocol, X Version 11,

b. Xlib — C Language X Interface,

c. X Toolkit Intrinsics — C Language Interface, and

d. Bitmap Distribution Format 2.1.

11. Implementation. This revised standard is effective May 2, 1994.

11.1 Acquisition of a Conforming System. Organizations developing network-based bit-mapped graphic system applications which are to be acquired for Federal use after May 2, 1994, and which have applications portability as a requirement shall consider the use of this FIPS. Conformance to this FIPS shall be considered whether the network-based bit-mapped graphic system applications are:

1. developed internally,

2. acquired as part of an ADP system procurement,

3. acquired by separate procurement,

4. used under an ADP leasing arrangement, or

5. specified for use in contracts for programming services.

11.2 Interpretation of the FIPS for the User Interface Component of the Applications Portability Profile. NIST provides for the resolution of questions regarding the FIPS specifications and requirements, and issues official interpretations as needed. All questions about the interpretation of this FIPS should be addressed to:

Director
Computer Systems Laboratory
Attn: APP User Interface Component
FIPS Interpretation
National Institute of Standards and Technology
Gaithersburg, MD 20899

11.3 Validation of Conforming Systems. The X Consortium is developing a validation suite for measuring conformance to the Xlib component of this standard. NIST is considering the use of the X Consortium validation suite as the basis for a NIST validation suite for measuring conformance to this standard.

12. Waivers. Under certain exceptional circumstances, the heads of Federal departments and agencies may approve waivers to Federal Information Processing Standards (FIPS). The head of such agency may redelegate such authority only to a senior official designated pursuant to section 3506(b) of Title 44, U.S. Code. Waivers shall be granted only when:

   a. Compliance with a standard would adversely affect the accomplishment of the mission of an operator of a Federal computer system, or
   b. Cause a major adverse financial impact on the operator which is not offset by Governmentwide savings.

   Agency heads may act upon a written waiver request containing the information detailed above. Agency heads may also act without a written waiver request when they determine that conditions for meeting the standard cannot be met. Agency heads may approve waivers only by a written decision which explains the basis on which the agency head made the required finding(s). A copy of each such decision, with procurement sensitive or classified portions clearly identified, shall be sent to: National Institute of Standards and Technology; ATTN: FIPS Waiver Decisions, Technology Building, Room B-154; Gaithersburg, MD 20899.

   In addition, notice of each waiver granted and each delegation of authority to approve waivers shall be sent promptly to the Committee on Government Operations of the House of Representatives and the Committee on Governmental Affairs of the Senate and shall be published promptly in the *Federal Register*.

   When the determination on a waiver applies to the procurement of equipment and/or services, a notice of the waiver determination must be published in the *Commerce Business Daily* as a part of the notice of solicitation for offers of an acquisition or, if the waiver determination is made after that notice is published, by amendment to such notice.

   A copy of the waiver, any supporting documents, the document approving the waiver and any supporting and accompanying documents, with such deletions as the agency is authorized and decides to make under 5 U.S.C. Sec. 552(b), shall be part of the procurement documentation and retained by the agency.

13. Where to Obtain Copies. Copies of this publication are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161. (Sale of the included specifications document is by arrangement with the Massachusetts Institute of Technology and Digital Equipment Corporation.) When ordering, refer to Federal Information Processing Standards Publication 158-1 (FIPSPUB158-1), and title. Payment may be made by check, money order, or deposit account.

Federal register

Notices

DEPARTMENT OF COMMERCE

National Institute of Standards and Technology

[Docket No. 920812–3179]

RIN 0693–AB10

Approval of Federal Information Processing Standards Publication 158–1, the User Interface Component of the Applications Portability Profile

AGENCY: National Institute of Standards and Technology (NIST), Commerce.

ACTION: The purpose of this notice is to announce that the Secretary of Commerce has approved a revised standard, which will be published as FIPS Publication 158–1, The User Interface Component of the Applications Portability Profile.

SUMMARY: On October 20, 1992, notice was published in the Federal Register (57 FR 47839) that a revision of Federal Information Processing Standard 158, The User Interface Component of the Applications Portability Profile, was being proposed for Federal use.

The written comments submitted by interested parties and other material available to the Department relevant to this standard were reviewed by NIST. On the basis of this review, NIST recommended that the Secretary approve this revised standard as a Federal Information Processing Standards Publication, and prepared a detailed justification document for the Secretary's review in support of that recommendation.

The detailed justification document which was presented to the Secretary is part of the public record and is available for inspection and copying in the Department's Central Reference and Records Inspection Facility, room 6020, Herbert C. Hoover Building, 14th Street between Pennsylvania and Constitution Avenues, NW., Washington, DC 20230.

This FIPS contains two sections: (1) An announcement section, which provides information concerning the applicability, implementation, and maintenance of the standard; and (2) a specifications section which deals with the technical requirements of the standard. Only the announcement section of the standard is provided in this notice.

EFFECTIVE DATE: This revised standard is effective May 2, 1994.

ADDRESSES: Interested parties may purchase copies of this revised standard, including the technical specifications portion, from the National Technical Information Service (NTIS). Specific ordering information from NTIS for this standard is set out in the Where to Obtain Copies Section of the announcement section of the standard.

FOR FURTHER INFORMATION CONTACT:

Mr. Robert H. Bagwill, National Institute of Standards and Technology, Gaithersburg, MD 20899, telephone (301) 975–3282, fax (301) 948–1784.

Dated: October 4, 1993.

Samuel Kramer,

Associate Director.

Federal Information Processing Standards Publication 158–1—Announcing the Standard for the User Interface Component of the Applications Portability Profile

Federal Information Processing Standards Publications (FIPS PUBS) are issued by the National Institute of Standards and Technology (NIST) after approval by the Secretary of Commerce pursuant to Section 111(d) of the Federal Property and Administrative Services Act of 1949 as amended by the Computer Security Act of 1987, Public Law 100–235.

Name of Standard. The User Interface Component of the Applications Portability Profile (FIPS Pub 158–1).

Category of Standard. Software Standard, Application Program Interface.

Explanation. This publication announces the adoption of the X Protocol, Xlib Interface, Xt Intrinsics and Bitmap Distribution Format specifications of the X Window System, Version 11, Release 5 (X Window System is a trademark of the Massachusetts Institute of Technology (MIT)) as a Federal Information Processing Standard. This FIPS is identical to FIPS 158, except that the specification is updated from Release 3 to Release 5 of the X Window System, Version 11. This standard is for use by computing professionals involved in system and application software development and implementation. This standard is part of a series of specifications needed for application portability. This standard covers the Data Stream Encoding, Data Stream Interface, and Subroutine Foundation layers of the reference model. It is the intention of NIST to provide standards for other layers of the reference model as consensus develops within industry. This standard addresses the user interface functional area of the Applications Portability Profile (NIST SP 500–187).

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Maintenance Agency. U.S. Department of Commerce, National Institute of Standards and Technology (NIST), Computer Systems Laboratory.

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f. To provide ease of use in computer systems through network-based bit-mapped graphic user interfaces with a consistent appearance. Government-wide attainment of the above objectives depends upon the widespread availability and use of comprehensive and precise standard specifications.

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d. Bitmap Distribution Format 2.1.

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Director, Computer Systems Laboratory, Attn: APP User Interface Component FIPS Interpretation, National Institute of Standards and Technology, Gaithersburg, MD 20899.

c. *Validation of Conforming Systems.* The X Consortium is developing a validation suite for measuring conformance to the Xlib component of this standard. NIST is considering the use of the X Consortium validation suite as the basis for an NIST validation suite for measuring conformance to this standard.

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a. Compliance with a standard would adversely affect the accomplishment of the mission of an operator of a Federal computer system, or

b. Cause a major adverse financial impact on the operator which is not offset by Governmentwide savings.

Agency heads may act upon a written waiver request containing the information detailed above. Agency heads may also act without a written waiver request when they determine that conditions for meeting the standard cannot be met. Agency heads may approve waivers only by a written decision which explains the basis on which the agency head made the required finding(s). A copy of each such decision, with procurement sensitive or

classified portions clearly identified, shall be sent to: National Institute of Standards and Technology; ATTN: FIPS Waiver Decisions, Technology Building, room B–154; Gaithersburg, MD 20899.
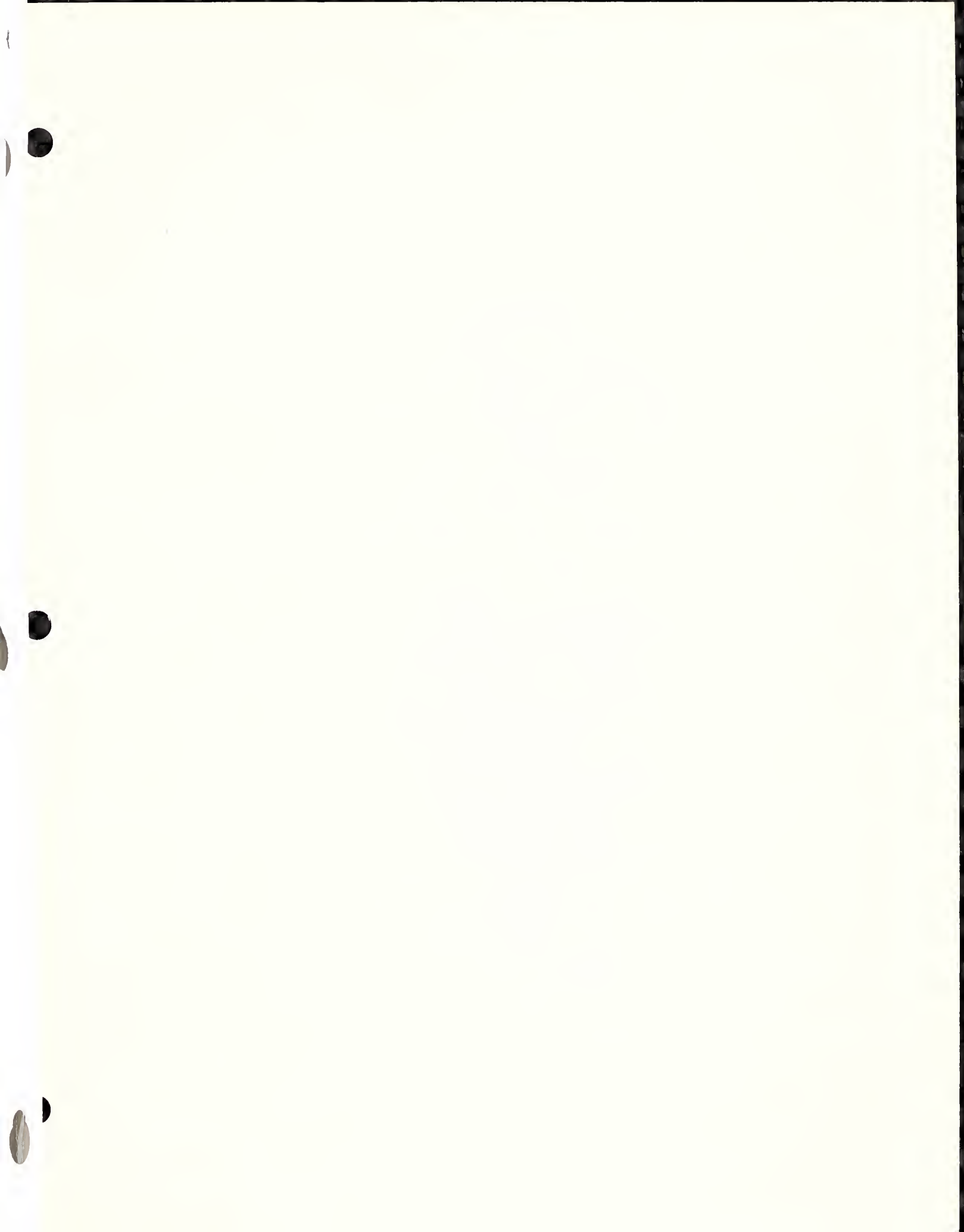
In addition, notice of each waiver granted and each delegation of authority to approve waivers shall be sent promptly to the Committee on Government Operations of the House of Representatives and the Committee on Governmental Affairs of the Senate and shall be published promptly in the Federal Register.

When the determination on a waiver applies to the procurement of equipment and/or services, a notice of the waiver determination must be published in the Commerce Business Daily as a part of the notice of solicitation for offers of an acquisition or, if the waiver determination is made after that notice is published, by amendment to such notice.

A copy of the waiver, any supporting documents, the document approving the waiver and any supporting and accompanying documents, with such deletions as the agency is authorized and decides to make under 5 U.S.C. 522(b), shall be part of the procurement documentation and retained by the agency.

Where to Obtain Copies: Copies of this publication are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161. (Sale of the included specifications document is by arrangement with the Massachusetts Institute of Technology and Digital Equipment Corporation.) When ordering, refer to Federal Information Processing Standards Publication 158–1 (FIPSPUB158–1), and title. Payment may be made by check, money order, or deposit account.

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