that date the requirements of FIPS PUB 172 apply to Federal VHDL procurements. This delayed effective date is intended to provide sufficient time for implementors of FIPS PUB 172 to make enhancements necessary for conformance of products to FIPS PUB 172–1.

ADDRESSES: Interested parties may purchase copies of this revised standard, including the technical specifications section, 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: Dr. William H. Dashiell, telephone (301) 975–2490, National Institute of Standards and Technology, Gaithersburg, MD 20899.

Dated: January 18, 1995.

Samuel Kramer,

Associate Director.

Federal Information Processing Standards Publication 172-1

199X Month Day

Announcing the Standard for VHSIC Hardware Description Language (VHDL)

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.

1. Name of Standard. VHSIC Hardware Description Language (VHDL) (FIPS PUB 172–1).

2. Category of Standard. Software Standard, hardware Description Language.

3. Explanation. This publication is a revision of FIPS PUB 172 and supersedes that document in its entirety.

This publication announces the adoption of the Federal Information Processing Standard (FIPS) for VHDL. This FIPS adopts American National Standard Hardware Description Language VHDL (ANSI/IEEE 1076-1993) as stipulated in the Specifications Section. The American National Standard specifies the form and establishes the interpretation of programs expressed in VHDL. The purpose of the standard is to promote portability of VHDL programs for use on a variety of data processing systems. The standard is used by implementors as the reference authority in developing

compilers, interpreters, analyzers, simulators or other forms of high level language processors, and is used by digital hardware designers, and by other computer professionals who need to know the precise syntactic and semantic rules of the standard and who need to provide specifications for digital hardware descriptions.

4. Approving authority. Secretary of Commerce.

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

6. Cross Index. ANSI/IEEE 1076–1993, IEEE Standard VHDL Language Reference Manual.

7. Related Documents.

a. Federal Information Resources Management Regulations (FIRMR) subpart 201.20.303, Standards, and subpart 201.39.1002, Federal Standards. b. Federal ADP and

Telecommunications Standards Index, U.S. General Services Administration, Information Resources Management Service, April 1994 (updated periodically).

c. NIST, Validated Products List, NISTIR 5475 (republished quarterly). Available by subscription from the National Technical Information Service (NTIS).

d. FIPS PUB 29–3, Interpretation Procedures for FIPS Software, 29 October 1992.

8. Objectives. Federal standards for high level digital design information and description languages permit Federal departments and agencies to exercise more effective control over the design, production, management, and maintenance of digital electronic systems. The primary objectives of this Federal hardware description language standard are:

- —to encourage more effective utilization of design personnel by ensuring that design skills acquired under one job are transportable to other jobs, thereby reducing the cost of programmer retraining;
- -to reduce the cost of design by achieving increased designer productivity and design accuracy through the use of formal languages;
- —to reduce the overall life cycle cost for digital systems by establishing a common description language for the transfer of digital design information across organizational boundaries;
- —to protect the immense investment of digital hardware from obsolescence by insuring to the maximal feasible extent that Federal hardware description language standards are

technically sound and that subsequent revisions are compatible with the installed base.

- -to reduce Federal inventory of electronic digital replacement parts by describing these parts in a form which enable suppliers to quickly retool manufacturing facilities to meet Federal needs.
- -to increase the sources of supplies which can satisfy government requirements for mission specific electronic digital components.

Government-wide attainment of the above objectives depends upon the widespread availability and use of comprehensive and precise standard language specifications.

9. Applicability

a. Federal standards for hardware description languages are applicable for the design and description of digital systems developed for government use. This standard is suitable for use in the following digital system applications:

- primary design and description of digital systems, subsystems, assemblies, hybrid components, and components;
- formal specifications of digital systems throughout the procurement, contracting and development process;
- test generation for digital systems, subsystems, assemblies, hybrid components, and components;
- —re-procurement and redesign of digital systems, subsystems, assemblies, hybrid components, and components.

b. The use of FIPS hardware description languages applies when one or more of the following situations exist:

- —When using a formal language for specifying a formal design specification for a complex digital system.
- —The digital system is under constant revision during the development process.
- -Ît is desired to have the design understood by multiple groups, or organizations.
- The system under development is to be designed by multiple groups, or organizations.
- Accurate unambiguous specifications are required in the bid and contracting process.

10. Specifications. The Specifications for this standard are the language specifications contained in ANSI/IEEE 1076–1993, IEEE Standard VHDL Language Reference Manual.

This FIPS does not allow conforming implementations to extend the language. A conforming implementation is one that does not allow inclusion of substitute or additional language elements in order to accomplish a