FEDERAL INFORMATION PROCESSING STANDARDS PUBLICATIONS (FIPS PUBS)

INDEX

NBS PUBLICATIONS LIST 58
Revised 1987 February

Available from the

NATIONAL TECHNICAL INFORMATION SERVICE

U.S. DEPARTMENT OF COMMERCE
National Bureau of Standards
Institute for Computer Sciences and Technology
Gaithersburg, MD 20899

UNITED STATES DEPARTMENT OF COMMERCE
National Technical Information Service
5285 Port Royal Road
Springfield, Virginia 22161

Dear Friend,

Congress has directed the National Bureau of Standards to define, catalog, and publish standards relating to Federal information processing--and to continually monitor, revise, and improve those standards. As a result, the FEDERAL INFORMATION PROCESSING STANDARDS, generally called FIPS, are published--and are available from NTIS--to help you.

FIPS are approved by the Secretary of Commerce and are required for anyone supplying computer hardware and software to Federal Government agencies . . . and for any business doing ADP work under a Federal contract. An increasing number of State governments have also adopted FIPS and they are accepted by private industry as a source of sound advice on general computer organization problem. Of course, these standards are of great value in computer design work.

Take a few moments now to examine this brochure. You will find that FIPS are not only essential as a Federal requirement, but invaluable as voluntary standards for many other applications. As an ADP professional you will want this important service readily available for prompt compliance and reference.

An order form is included for your convenience.

Sincerely,

Joseph F. Caponio

Joseph F. Caponio
Director, NTIS

INSTITUTE FOR COMPUTER SCIENCES AND TECHNOLOGY

Computer technology is one of the most exciting and dynamic technology developments over the past 40 years. No longer the exclusive tools of scientists and engineers, computers are now common in our offices, factories, and schools. The rapid pace of technology change makes planning and implementing computer applications increasingly complex.

The Institute for Computer Sciences and Technology (ICST) at the National Bureau of Standards (NBS), serves government and industry by providing standards, test methods, and technical assistance to advance new uses of computer technology and to spur productivity advancement.

ICST carries out technical programs that help organizations select and use new technology for improved productivity and service delivery. Products include technology forecasts, workshops and seminars, and selection guides to aid in planning for the use of new technology. The development of national and international computer standards is an especially important activity. Here, ICST plans a key role in fostering standards by supporting the voluntary standards process and developing tests and test methods for new standards. Uniform international standards help to preserve the competitive position of the U.S. computer industry and to expand the market for computer products and services. Users need standards to link off-the-shelf commercial products of different manufacturers and to make full use of staff training and skills.

To carry out its programs, ICST works with a broad spectrum of organizations including Federal, State, and local governments, industry computer users and manufacturers, research organizations, and voluntary standards groups.

For more information about ICST programs, you may contact:

Program Coordination and Support Group
Institute for Computer Sciences and Technology
Building 225, Room B151
National Bureau of Standards
Gaithersburg, MD 20899
Telephone: (301) 975-2833

FEDERAL INFORMATION PROCESSING STANDARDS PUBLICATIONS (FIPS PUBS)

INDEX

Federal Information Processing Standards Publications (FIPS PUBS) are developed by the Institute for Computer Sciences and Technology (ICST) and issued under the provisions of the Federal Property and Administrative Services Act of 1949, as amended; Public Law 89-306 (79 Stat. 1127); Executive Order 11717 (38 FR 12315); and Part 6 of Title 15 of the Code of Federal Regulations (CFR).

The goals of the Federal Information Processing Standards program are to:

- improve the life-cycle efficiency and effectiveness of Federal information technology resources,
- facilitate the competitive and economic procurement of systems, components and services,
- improve the portability of data, software, and technical skills across systems,
- protect systems and networks against unauthorized access, manipulation, abuse,
- reduce waste, errors, and unnecessary duplication in the application and use of systems, and
- increase the productivity of the Federal workforce.

FIPS PUBS include standards, guidelines, and program information documents and are currently classified in the following categories:

(1) GENERAL PUBLICATIONS

(2) HARDWARE STANDARDS AND GUIDELINES

(3) SOFTWARE STANDARDS AND GUIDELINES

(4) DATA STANDARDS AND GUIDELINES

(5) ADP OPERATIONS STANDARDS AND GUIDELINES

(6) CONFORMANCE TESTS

Entries in this publication list include title, publication number, date of issue, and a short abstract for each FIPS PUB. Associated voluntary standards, Federal Telecommunications standards and guidelines are indicated where appropriate. Each standard contains information about implementation requirements.

FIPS PUBS are sold by the National Technical Information Service (NTIS), U.S. Department of Commerce. Prices and ordering information are provided on pages 25 through 30.

Requests for additional copies of this list or for information about current FIPS, and waiver requirements may be addressed to:

Standards Processing Coordinator (ADP)
Institute for Computer Sciences and Technology
Building 225, Room B-64
National Bureau of Standards
Gaithersburg, MD 20899
Phone: (301) 975-2816

CONTENTS

FIPS PUBLICATION SERIES

(1) GENERAL PUBLICATIONS

FIPSPUB0 GENERAL DESCRIPTION OF THE FEDERAL INFORMATION PROCESSING STANDARDS REGISTER, 1968 November 1.

Establishes the Federal Information Processing Standards Register as the official source within the Federal Government for information pertaining to the approval, implementation and maintenance of FIPS. Defines responsibilities for development and maintenance of Register, and for the content and format of FIPS.

FIPSPUB29-1 INTERPRETATION PROCEDURES FOR FEDERAL INFORMATION PROCESSING STANDARD PROGRAMMING LANGUAGES, 1981 December 31.

Establishes procedures for users and vendors of programming language compilers to follow when requesting interpretations of the meaning of language specifications of the Federal Information Processing Standard programming languages. FIPS PUB 29-1 is being revised.

FIPSPUB34 GUIDE FOR THE USE OF INTERNATIONAL SYSTEM OF UNITS (SI) IN FEDERAL INFORMATION PROCESSING STANDARDS PUBLICATIONS, 1975 January 1.

Establishes requirements for use of International System of Units in all FIPS PUBS. Covers use of dual dimensional notation in measurements, spelling of SI units, symbols for units, and use of separators and decimal points.

(2) HARDWARE STANDARDS AND GUIDELINES

Character Recognition

FIPSPUB32-1 CHARACTER SETS FOR OPTICAL CHARACTER RECOGNITION (OCR), 1982 June 25.

Specifies the shapes and sizes of printed characters to be used in optical character recognition (OCR) systems. The standard incorporates three character sets designated as OCR-A, OCR-B, and MICR E-13B. The latter character set is intended for automated recognition by magnetic means but may be read optically. Adopts ANSI X3.2-1970 (R1976), ANSI X3.17-1981, and ANSI X3.49-1975(R1982).

FIPSPUB33-1 CHARACTER SET FOR HANDPRINTING, 1984 November 5.

Specifies shapes and sizes of handprinted characters to be used in Optical Character Recognition (OCR) systems. Character set remains the same as the previous standard set with the exception of the Yen symbol. This standard applies to Federal ADP systems that use handprinted data as input to OCR equipment. Adopts ANSI X3.45-1982.

FIPSPUB40 GUIDELINE FOR OPTICAL CHARACTER RECOGNITION FORMS, 1976 May 1.

Provides information on the design, preparation, acquisition, and application of OCR forms in data entry systems. Covers the factors affecting forms design, the materials and layout required for forms to be processed in OCR systems, requirements needed to write procurement specifications, and to inspect forms, and the available tools that aid in forms design.

FIPSPUB85 OPTICAL CHARACTER RECOGNITION (OCR) INKS, 1980 November 7.

Defines the spectral band for read inks and provides spectrophotometric curves for red and blue nonread inks. Applies to inks and preprinted forms that are read by OCR techniques. Adopts ANSI X3.86-1980.

(2) HARDWARE STANDARDS AND GUIDELINES—Continued

Character Recognition—Continued

FIPSPUB89 OPTICAL CHARACTER RECOGNITION (OCR) CHARACTER POSITIONING, 1981 September 4.

Specifies the nominal position with allowable tolerances of OCR characters in relation to their location to other machine readable characters or sensed marks and to the document edges. Adopts ANSI X3.93M-1981.

FIPSPUB90 GUIDELINE FOR OPTICAL CHARACTER RECOGNITION (OCR) PRINT QUALITY, 1981 September 29.

Provides basic information on methods for evaluating the readability of printed characters and symbols that are to be optically recognized by electronic means. Adopts ANSI X3.99-1983.

Computer Network Protocols

FIPSPUB107 LOCAL AREA NETWORKS: BASEBAND CARRIER SENSE MULTIPLE ACCESS WITH COLLISION DETECTION ACCESS METHOD AND PHYSICAL LAYER SPECIFICATIONS AND LINK LAYER PROTOCOL, 1984 October 31.

Specifies a network access technique used in office automation applications. Provides the mechanical, electrical, functional and procedural specifications and link protocol required to establish physical connections, to transmit bits and to send data link frames between nodes. Adopts ANSI/IEEE 802.2 Logical Link Control type 1 class 1 service, and all of ANSI/IEEE 802.3.

Data Entry Equipment

FIPSPUB67 GUIDELINE FOR SELECTION OF DATA ENTRY EQUIPMENT, 1979 September 30.

Provides information about the general characteristics of data entry equipment. Discusses the factors to be taken into consideration in the selection of efficient and economical data entry systems.

Interchange Codes, Media, and Data Files

FIPSPUB1-2 CODE FOR INFORMATION INTERCHANGE, ITS REPRESENTATIONS, SUBSETS, AND EXTENSIONS, 1984 November 14.

Provides a standard coded character set and a recommended collating sequence, subsets, extensions, and certain graphic representations for the set, all for use in Federal information processing systems, communications systems, and related equipment. This revised standard withdrew FIPS 7, 15, 35 and 36. Adopts ANSI X3.4-1977, X3.32-1973, and X3.41-1974.

FIPSPUB2-1 PERFORATED TAPE CODE FOR INFORMATION INTERCHANGE, 1984 November 14.

Specifies the representation of the Code for Information Interchange on perforated tape and similarly encoded media used for interchange of information between office machines, data processing and communications systems. Adopts ANSI X3.6-1965(R1983).

FIPSPUB3-1 RECORDED MAGNETIC TAPE FOR INFORMATION INTERCHANGE (800 CPI, NRZI), 1973 June 30.

Specifies the recorded characteristics of 9-track, one-half inch wide magnetic tape and the data format for representing the Standard Code for Information Interchange at the recording density of 800 characters per inch (CPI). Adopts ANSI X3.22-1973. FIPS PUB 3-1 is being revised to adopt ANSI X3.22-1983.

(2) HARDWARE STANDARDS AND GUIDELINES—Continued

Interchange Codes, Media, and Data Files—Continued

FIPSPUB13 RECTANGULAR HOLES IN TWELVE-ROW PUNCHED CARDS, 1971 October 1.

Specifies the size, location, and dimensional tolerances of rectangular holes in 12-row, 3-1/4 inch wide punched cards. This standard applies to card reading and punching equipment used in data processing, communications and related functions. Adopts ANSI X3.21-1967(R1980).

FIPSPUB14-1 HOLLERITH PUNCHED CARD CODE, 1980 December 24.

Specifies the hole patterns to represent the 128 characters of the Standard Code for Information Interchange in 12-row, 80 column, rectangular hole punched cards. This standard is applicable when subsets of the standard code are used as specified in FIPS 1-2. Adopts ANSI X3.26-1980.

FIPSPUB25 RECORDED MAGNETIC TAPE FOR INFORMATION INTERCHANGE (1600 CPI, PHASE ENCODED), 1973 June 30.

Provides specifications for format and recording of the Standard Code for Information Interchange on one-half inch, 9-track magnetic tape. Covers recording method, density, allowable skew, signal amplitude, representation of codes on tracks, block, lengths, inter-record gaps, and check characters. Adopts ANSI X3.39-1973. FIPS PUB 25 is being revised to adopt ANSI X3.39-1986.

FIPSPUB26 ONE-INCH PERFORATED PAPER TAPE FOR INFORMATION INTERCHANGE, 1973 June 30.

Specifies the width and thickness of one-inch perforated paper tape; the locations and size of feed holes and information holes. Adopts ANSI X3.18-1967(R1974&1982).

FIPSPUB27 TAKE-UP REELS FOR ONE-INCH PERFORATED TAPE FOR INFORMATION INTERCHANGE, 1973 June 30.

Specifies the physical characteristics and dimensions for both small diameter and large diameter drive tape-up (or storage) reels with either fixed or separable flanges. Adopts ANSI X3.20-1967(R1982).

FIPSPUB50 RECORDED MAGNETIC TAPE FOR INFORMATION INTERCHANGE, 6250 CPI (246 CPMM), GROUP CODED RECORDING, 1978 February 1.

Specifies format and recording requirements for representing the Standard Code for Information Interchange on nine-channel, one-half inch magnetic tape. This standard applies to recording and reproducing equipment operating at densities of 6250 characters per inch. Adopts ANSI X3.54-1976. FIPS PUB 50 is being revised to adopt ANSI X3.54-1986.

FIPSPUB51 MAGNETIC TAPE CASSETTES FOR INFORMATION INTERCHANGE (3.810 MM [0.150 IN] TAPE AT 32 BPMM [800 BPI], PE, 1978 February 1.

Specifies the physical, magnetic, and recorded characteristics of a 3.810 mm [0.150 in] magnetic tape cassette at a recording density of 32 bits per millimeter [800 bits per inch] using phase encoding techniques. Adopts ANSI X3.48-1977.

FIPSPUB52 RECORDED MAGNETIC TAPE CARTRIDGE FOR INFORMATION INTERCHANGE, 4-TRACK, 6.30 MM (1/4 IN), 63 BPMM (1600 BPI), PHASE ENCODED, 1978 July 15.

Specifies format and recording requirements for representing the Code for Information Interchange on 6.30 mm wide magnetic tape cartridges with either one, two or four special data tracks. This standard applies to recording and reproducing equipment operating at densities of 63 bits per millimeter. Adopt ANSI X3.56-1977.

(2) HARDWARE STANDARDS AND GUIDELINES—Continued

Interchange Codes, Media, and Data Files—Continued

FIPSPUB54 COMPUTER OUTPUT MICROFORM (COM) FORMATS AND REDUCTION RATIOS, 16 MM AND 105 MM, 1978 July 15.

Specifies the image arrangement, size and reduction ratios for 16 mm and 105 mm microforms generated by computer output microfilmers. This standard applies to systems using business-oriented fonts similar to line printer output.

FIPSPUB82 GUIDELINE FOR INSPECTION AND QUALITY CONTROL FOR ALPHANUMERIC COMPUTER-OUTPUT MICROFORMS, 1980 September 26.

Provides basic information on the questions associated with generating microforms by computers and describes test procedures to insure that the output is of high quality. Specifications are contained in AIIM (NMA) MS1-1980.

FIPSPUB84 MICROFILM READERS, 1980 October 31.

Defines the minimum levels of image quality, illumination, and related characteristics for equipment that displays computer-generated microforms that are made in accordance with FIPS 54. Also covers maximum safe temperatures and maximum acceptable noise levels. Adopts ANSI/AIIM (NMA) MS20-1979.

FIPSPUB86 ADDITIONAL CONTROLS FOR USE WITH ASCII, 1981 January 29.

Specifies a set of encoded control functions to facilitate data interchange between data processing equipment, data communication equipment, and ADP terminals of the display or printer type, line printers, microfilm printers, typesetting composers, word processors, and related devices. Applies to equipment and services that involve character imaging employing the character set and encoding conversions prescribed by FIPS 1-2 with primarily character-oriented controls. Adopts ANSI X3.64-1979.

FIPSPUB91 MAGNETIC TAPE CASSETTES FOR INFORMATION INTERCHANGE, DUAL TRACK COMPLEMENTARY RETURN-TO-BIAS (CRB) FOUR-STATES RECORDING ON 381-MM (0.150-IN) TAPE, 1982 March 12.

Specifies the format and recorded characteristics for representing the Code for Information Interchange on 3.81-mm (0.150-in) wide magnetic tape with data recorded on two tracks using complementary recording and a return-to-bias method of encoding. Adopts ANSI X3.59-1981. FIPS PUB 91 will be withdrawn.

FIPSPUB93 PARALLEL RECORDED MAGNETIC TAPE CARTRIDGE FOR INFORMATION INTERCHANGE, 4—TRACK, 6.30 MM (1/4 IN), 63 BPMM (1600 BPI), PHASE ENCODED, 1982 June 29.

Specifies the format and recorded characteristics for representing the Code for Information Interchange on 6.30 mm (1/4 in) wide magnetic tape cartridge with data recorded across four parallel tracks at a recording density of 63 bits per millimeter (1600 bits per inch) using phase encoding techniques. Adopts ANSI X3.72-1981.

FIPSPUB108 ALPHANUMERIC COMPUTER OUTPUT MICROFORM QUALITY TEST SLIDE, 1984 November 5.

Provides detailed information for the preparation of a test form slide to ensure the generation of quality microforms by computers. This standard is a companion to FIPS 82. Adopts AIIM MS28-1983.

FIPSPUB114 200 MM (8 IN) FLEXIBLE DISK CARTRIDGE TRACK FORMAT USING TWO-FREQUENCY RECORDING AT 6631 BPRAD ON ONE SIDE—1.9 TPMM (48 TPI) FOR INFORMATION INTERCHANGE, 1985 September 30.

Prescribes a set of physical track format specifications for single-sided, single-density, 200 mm (8 in) flexible disk cartridges which have a data density of 6631 bprad and 77 tracks at a track density of 1.9 tpmm (48 tpi). Specifications enable users to interchange information using commercially available disk technology and to purchase off-the-shelf equipment. Adopts ISO 5654/2.

(2) HARDWARE STANDARDS AND GUIDELINES—Continued

Interchange Codes, Media, and Data Files—Continued

FIPSPUB115 200 MM (8 IN) FLEXIBLE DISK CARTRIDGE TRACK FORMAT USING MODIFIED FREQUENCY MODULATION RECORDING AT 13262 BPRAD ON TWO SIDES—1.9 TPMM (48 TPI) FOR INFORMATION INTERCHANGE, 1985 September 30.

Prescribes a set of physical track format specifications for two-sided, double-density, 200 mm (8 in) flexible disk cartridges which have a data density of 13262 bprad and 77 tracks at a track density of 1.9 tpmm (48 tpi). Specifications enable users to interchange information using commercially available disk technology and to purchase off-the-shelf equipment. Adopts ISO 7065/2.

FIPSPUB116 130 MM (5.25 IN) FLEXIBLE DISK CARTRIDGE TRACK FORMAT USING TWO-FREQUENCY RECORDING AT 3979 BPRAD ON ONE SIDE—1.9 TPMM (48 TPI) FOR INFORMATION INTERCHANGE, 1985 September 30.

Prescribes a set of physical track format specifications for single-sided, single-density, 130 mm (5.25 in) flexible disk cartridges which have a data density of 3979 bprad and 35 tracks at a track density of 1.9 tpmm (48 tpi). Specifications enable users to interchange information using commercially available disk technology and to purchase off-the-shelf equipment. Adopts ISO 6596/2.

FIPSPUB117 130 MM (5.25 IN) FLEXIBLE DISK CARTRIDGE TRACK FORMAT USING MODIFIED FREQUENCY MODULATION RECORDING AT 7958 BPRAD ON TWO SIDES—1.9 TPMM (48 TPI) FOR INFORMATION INTERCHANGE, 1985 September 30.

Prescribes a set of physical track format specifications for two-sided, double-density, 130 mm (5.25 in) flexible disk cartridges which have a data density of 7958 bprad and 40 tracks at a track density of 1.9 tpmm (48 tpi). Specifications enable users to interchange information using commercially available disk technology and to purchase off-the-shelf equipment. Adopts ISO 7487/3.

FIPSPUB121 VIDEOTEX/TELETEXT PRESENTATION LEVEL PROTOCOL SYNTAX (NORTH AMERICAN PLPS), 1986 May 6.

Describes the formats, rules, and procedures for encoding of alphanumeric text and pictorial information for videotex and teletext applications. Adopts joint American National Standard X3.110-1983/Canadian Standard CSA T500-1983.

Interface

FIPSPUB60-2 I/O CHANNEL INTERFACE, 1983 July 29.

Defines the functional, electrical, and mechanical interface specifications for connecting computer peripheral equipment as part of automatic data processing systems. It is to be used with companion standards (FIPS 61-1, 62, 63-1, and 97) to provide for plug-to-plug interchangeability of peripheral components such as magnetic tape and disk equipment.

FIPSPUB61-1 CHANNEL LEVEL POWER CONTROL INTERFACE, 1982 July 13.

Defines the functional, electrical and mechanical interface specifications for a power control interface for use in connecting computer peripheral equipment as part of automatic data processing systems. This standard is applicable whenever use of FIPS 60-2 is required. Adopts ANSI document X3T9/666, Revision 2/Revised.

FIPSPUB62 OPERATIONAL SPECIFICATIONS FOR MAGNETIC TAPE SUBSYSTEMS, 1979 February 16.

Defines the operational specifications for connecting magnetic tape equipment as part of automatic data processing systems. This standard applies to acquisition of magnetic tape equipment whenever use of FIPS PUBS 60-2 and 61-1 are required. Adopts ANSI document X3T9/780, Revision 3.

(2) HARDWARE STANDARDS AND GUIDELINES—Continued

Interface—Continued

FIPSPUB63-1 OPERATIONAL SPECIFICATIONS FOR VARIABLE BLOCK ROTATING MASS STORAGE SUBSYSTEMS, 1983 April 14.

Provides operational specifications for command codes, data formats, sense and status information, etc., for variable block rotating mass storage subsystems which are connected as part of ADP systems. It is to be used with FIPS PUBS 60-2 and 61-1. Additional operational specifications of track format and sense information are provided for the most common device types in a separate report entitled Additional Operational Specifications for Variable Block Rotating Mass Storage Devices (a Supplement to FIPS PUB 63-1).

FIPSPUB97 OPERATIONAL SPECIFICATIONS FOR FIXED BLOCK ROTATING MASS STORAGE SUBSYSTEMS, 1983 February 4.

Defines the peripheral device dependent operational interface specifications for connecting fixed block rotating mass storage equipment as a part of automatic data processing (ADP) systems. It is to be used together with FIPS PUBS 60-2 and 61-1. This standard, together with these two referenced standards, provides for full plug-to-plug interchangeability of fixed block rotating mass storage equipment as a part of ADP systems.

FIPSPUB111 STORAGE MODULE INTERFACES (with extensions for enhanced storage module interfaces), 1985 April 18.

Describes the mechanical, electrical and functional requirements for the storage module class of interface between disk drives and their respective control units. An alternative to FIPS 60-2, *I/O Channel Interface*, this standard can be used in the acquisition of disk drives for medium and large scale computer systems, and for minicomputer systems. Adopts ANSI X3.91M-1982.

Power, Grounding and Life-Safety

FIPSPUB94 GUIDELINE ON ELECTRICAL POWER FOR ADP INSTALLATIONS, 1983 September 21.

Provides information on factors in the electrical environment that affect the operation of ADP systems. Describes the fundamentals of power, grounding, life-safety, static electricity, and lightening protection requirements, and provides a checklist for evaluating ADP sites.

Transmission

FIPSPUB16-1 BIT SEQUENCING OF THE CODE FOR INFORMATION INTERCHANGE IN SERIAL-BY-BIT DATA TRANSMISSION, 1977 September 1.

Specifies the method for transmitting the Standard Code for Information Interchange in serial-by-bit, serial-by-character data transmission. This standard is the same as Federal Standard 1010. Adopts ANSI X3.15-1976(R1983).

FIPSPUB17-1 CHARACTER STRUCTURE AND CHARACTER PARITY SENSE FOR SERIAL-BY-BIT DATA COMMUNICATION IN THE CODE FOR INFORMATION INTERCHANGE, 1977 September 1.

Specifies the character structure and sense of character parity for serial-by-bit, serial-by-character data communication for the Standard Code for Information Interchange. This standard is the same as Federal Standard 1011. Adopts ANSI X3.16-1976(R1983).

FIPSPUB18-1 CHARACTER STRUCTURE AND CHARACTER PARITY SENSE FOR PARALLEL-BY-BIT DATA COMMUNICATION IN THE CODE FOR INFORMATION INTERCHANGE, 1977 September 1.

Specifies the character structure and character parity sense for transmitting the Standard Code for Information Interchange in systems employing parallel-by-bit data trans-

(2) HARDWARE STANDARDS AND GUIDELINES—Continued

Transmission—Continued

mission. This standard is the same as Federal Standard 1012. Adopts ANSI X3.25-1976(R1983).

FIPSPUB22-1 SYNCHRONOUS SIGNALING RATES BETWEEN DATA TERMINAL AND DATA COMMUNICATION EQUIPMENT, 1977 September 1.

Specifies the rates of transferring binary encoded information in synchronous serial or parallel form between data processing terminal and data communications equipment that employ voice and band communications facilities. This standard is the same as Federal Standard 1013. Adopts ANSI X3.1-1976.

FIPSPUB37 SYNCHRONOUS HIGH SPEED DATA SIGNALING RATES BETWEEN DATA TERMINAL EQUIPMENT AND DATA COMMUNICATIONS EQUIPMENT, 1975 June 15.

Specifies the rates for transferring synchronous binary encoded information between data processing terminal and data communication equipment on wide band communication channels. This standard is the same as Federal Standard 1001 and complements FIPS 22-1. Adopts ANSI X3.36-1975. FIPS PUB 37 will be withdrawn.

FIPSPUB71 ADVANCED DATA COMMUNICATION CONTROL PROCEDURES (ADCCP), 1980 May 14.

Defines the data link control procedures to be used by ADP equipment and services employing bit-oriented synchronous data communication links. The procedures provide for transfer of data across a data link, minimal exposure to errors and to loss or duplication of information control functions relating to beginning, suspending, and terminating the flow of information across a link; and operation on any type of synchronous data transmission facility. Adopts ANSI X3.66-1979.

FIPSPUB78 GUIDELINE FOR IMPLEMENTING ADVANCED DATA COMMUNICATION CONTROL PROCEDURES (ADCCP), 1980 September 26.

Provides guidance to the system designer in selecting ADCCP options and other parameters. Recommends certain options so that equipment and services purchased by the Government will be compatible. The use of ADCCP is required under certain conditions specified in FIPS 71.

FIPSPUB100/ FEDSTD1041 INTERFACE BETWEEN DATA TERMINAL EQUIPMENT (DTE) AND DATA CIRCUIT-TERMINATING EQUIPMENT (DCE) FOR OPERATION WITH PACKET-SWITCHED DATA COMMUNICATIONS NETWORKS, 1983 July 6.

Specifies the means of interfacing ADP equipment and services, as well as telecommunication system terminal equipment, with packet-switched data communication networks. It is based on Recommendation X.25 which was developed and approved by the International Telegraph and Telephone Consultative Committee (CCITT). X.25 contains a large number of options and implementation alternatives, which if exercised in different ways would impede the interoperability of equipment and services. This joint standard limits these options and alternatives in order to satisfy the vast majority of Federal user requirements for interconnections with packet-switched data communications networks.

(3) SOFTWARE STANDARDS AND GUIDELINES

Computer Network Protocols

FIPSPUB107 LOCAL AREA NETWORKS: BASEBAND CARRIER SENSE MULTIPLE ACCESS WITH COLLISION DETECTION ACCESS METHOD AND PHYSICAL LAYER SPECIFICATIONS AND LINK LAYER PROTOCOL, 1984 October 31.

(3) SOFTWARE STANDARDS AND GUIDELINES—Continued

Computer Network Protocols—Continued

Specifies a network access technique used in office automation applications. Provides the mechanical, electrical, functional and procedural specifications and link protocol required to establish physical connections, to transmit bits and to send data link frames between nodes. Adopts ANSI/IEEE 802.2 Logical Link Control type 1 class 1 service, and all of ANSI/IEEE 802.3.

Data Management Applications

FIPSPUB76 GUIDELINE FOR PLANNING AND USING A DATA DICTIONARY SYSTEM, 1980 August 20.

Describes the capabilities of a data dictionary system (DDS), discusses selection considerations, and provides guidance for planning, implementation, and operational use of a DDS.

FIPSPUB77 GUIDELINE FOR PLANNING AND MANAGEMENT OF DATABASE APPLICATIONS, 1980 September 1.

Summarizes a recommended discipline of application management for database systems and provides specific advice on applications planning and management, and on software selection.

FIPSPUB88 GUIDELINE ON INTEGRITY ASSURANCE AND CONTROL IN DATABASE ADMINISTRATION, 1981 August 14.

Provides explicit advice on achieving database integrity and security control, and documents a step-by-step procedure for examining and verifying the accuracy and completeness of a database.

FIPSPUB110 GUIDELINE FOR CHOOSING A DATA MANAGEMENT APPROACH, 1984 December 11.

Provides a framework for comparing and selecting alternative data management approaches. The emphasis is on pragmatic guidance that captures the principal, relevant decision factors.

FIPSPUB124 GUIDELINE ON FUNCTIONAL SPECIFICATIONS FOR DATABASE MANAGEMENT SYSTEMS, 1986 September 30.

Provides a framework for gathering and incorporating an appropriate set of data management functions into a request for proposals document. The emphasis is on the logical separation of the database management functional specifications, the relationship among the logical categories, and the recommended set of sources.

Documentation

FIPSPUB11-2 GUIDELINE: AMERICAN NATIONAL DICTIONARY FOR INFORMATION PROCESSING SYSTEMS, 1983 May 9.

Provides a common reference within the Government for terms and definitions used in such information processing activities as the representation, communication, interpretation and processing of data by human or automatic means. The Dictionary consists of a single alphabetic listing of over 4000 terms and their definitions. Adopts X3/TR-1-82.

FIPSPUB20 GUIDELINES FOR DESCRIBING INFORMATION INTERCHANGE FORMATS, 1972 March 1.

Identifies and defines the physical and logical characteristics of formatted information to improve data interchange, processing, and use. This standard has been adopted as a voluntary industry standard, ANSI X10.1-1973.

(3) SOFTWARE STANDARDS AND GUIDELINES—Continued

Documentation—Continued

FIPSPUB24 FLOWCHART SYMBOLS AND THEIR USAGE IN INFORMATION PROCESSING, 1973 June 30.

Prescribes and defines flowchart symbols to represent the sequence of operations, the flow of data, and the flow of paperwork on flowcharts for information processing; prescribes presentation techniques for flowchart symbols on flowcharts; prescribes and defines the use of flowchart symbols. Adopts ANSI X3.5-1970.

FIPSPUB30 SOFTWARE SUMMARY FOR DESCRIBING COMPUTER PROGRAMS AND AUTOMATED DATA SYSTEMS, 1974 June 30.

Establishes a standard form to be used by Federal agencies in documenting summaries or abstracts of programs and automated data systems.

FIPSPUB38 GUIDELINES FOR DOCUMENTATION OF COMPUTER PROGRAMS AND AUTOMATED DATA SYSTEMS, 1976 February 15.

Provides basic guidance for the preparation of ten document types that are used in the development of computer software. Can be used as a checklist for the planning and evaluation of software documentation practices.

FIPSPUB53 TRANSMITTAL FORM FOR DESCRIBING COMPUTER MAGNETIC TAPE FILE PROPERTIES, 1978 April 1.

Provides a standard form for Federal agencies to use in documenting the physical properties and characteristics of a recorded magnetic tape file.

FIPSPUB64 GUIDELINES FOR DOCUMENTATION OF COMPUTER PROGRAMS AND AUTOMATED DATA SYSTEMS FOR THE INITIATION PHASE, 1979 August 1.

Provides guidance in determining the content and extent of documentation needed for initiation phase of the software life cycle. Covers preparation of project requests, feasibility studies, and cost/benefit analysis documents.

FIPSPUB105 GUIDELINE FOR SOFTWARE DOCUMENTATION MANAGEMENT, 1984 June 6.

Provides explicit advice on managing the planning, development, and production of computer software documentation. Includes several checklists, references to relevant standards and guidelines, and a glossary of terms.

Graphics

FIPSPUB120 GRAPHICAL KERNEL SYSTEM (GKS), 1986 April 18.

Specifies a library (or toolbox package) of subroutines for an application programmer to incorporate within a program in order to produce and manipulate two-dimensional pictures. Promotes portability of graphics application programs between different computers, and to aid programmers in understanding and using graphics methods. Adopts ANSI X3.124-1985. GKS is also an international standard (ISO 7942).

Information Interchange

FIPSPUB123 SPECIFICATION FOR A DATA DESCRIPTIVE FILE FOR INFORMATION INTERCHANGE (DDF), 1986 September 19.

Specifies media-independent and system-independent file and record formats for the interchange of information between computer systems. Provides a mechanism to allow data structures to be easily transported from one computer system to another computer system, independent of make, with the capability of restructuring the data without loss of content or meaning. Adopts ANSI/ISO 8211-1985.

(3) SOFTWARE STANDARDS AND GUIDELINES—Continued

Interchange Codes, Media, and Data Files

FIPSPUB1-2 CODE FOR INFORMATION INTERCHANGE, ITS REPRESENTATIONS, SUBSETS, AND EXTENSIONS, 1984 November 14.

Provides a standard coded character set and a recommended collating sequence, subsets, extensions, and certain graphic representations for the set, all for use in Federal information processing systems, communications systems, and related equipment. This revised standard withdraws FIPS 7, 15, 35, and 36. Adopts ANSI X3.4-1977, X3.32-1973, and X3.41-1974.

FIPSPUB98 MESSAGE FORMAT FOR COMPUTER-BASED MESSAGE SYSTEMS, 1983 March 1.

The implementation of this standard has been suspended indefinitely, and will be withdrawn.

FIPSPUB121 VIDEOTEX/TELETEXT PRESENTATION LEVEL PROTOCOL SYNTAX (NORTH AMERICAN PLPS), 1986 May 6.

Describes the formats, rules, and procedures for encoding of alphanumeric text and pictorial information for videotex and teletext applications. Adopts joint American National Standard X3.110-1983/Canadian Standard CSA T500-1983.

Operating Procedures

FIPSPUB79 MAGNETIC TAPE LABELS AND FILE STRUCTURE FOR INFORMATION INTERCHANGE, 1980 October 17.

Specifies four levels of labeling, label formats, blocking structure, and tape-mark relationships on magnetically recorded tapes used for information interchange. Adopts ANSI X3.27-1978 with qualifications for Federal applicability.

FIPSPUB118 FLEXIBLE DISK CARTRIDGE LABELLING AND FILE STRUCTURE FOR INFORMATION INTERCHANGE, 1985 September 30.

Prescribes a set of logical track format specifications for flexible disk cartridges described in the following physical track format standards: FIPS 114, 115, 116, and 117. Specifications enable users to interchange information using commercially available disk technology and to purchase off-the-shelf equipment. Adopts ISO 7665.

Programming Languages

FIPSPUB21-2 COBOL, 1986 March 18.

Establishes the form for and the interpretation of programs expressed in FIPS COBOL. Adopts ANSI X3.23-1985.

FIPSPUB29-1 INTERPRETATION PROCEDURES FOR FEDERAL INFORMATION PROCESSING STANDARD PROGRAMMING LANGUAGES, 1981 December 31.

Establishes procedures for users and vendors of programming language compilers to follow when requesting interpretations of the meaning of language specifications of the Federal Information Processing Standard programming languages. FIPS PUB 29-1 is being revised.

FIPSPUB68-1 MINIMAL BASIC, 1985 December 24.

Defines the syntax of the Minimal BASIC programming language and the semantics for its interpretation. Adopts ANSI X3.60-1978.

FIPSPUB69-1 FORTRAN, 1985 December 24.

Specifies the form and establishes the interpretation of programs expressed in the FORTRAN programming language. The standard consists of a full language, FORTRAN, and a subset language, Subset FORTRAN. Adopts ANSI X3.9-1978.

(3) SOFTWARE STANDARDS AND GUIDELINES—Continued

Programming Languages—Continued

FIPSPUB109 PASCAL, 1985 January 16.

Specifies the form and establishes the interpretation of programs expressed in the PASCAL programming language. Promotes portability of PASCAL programs for use on a variety of data processing systems. Adopts ANSI/IEEE770X3.97-1983.

FIPSPUB119 ADA, 1985 November 8.

Specifies the form and establishes the interpretation of programs expressed in the Ada programming language. Promotes portability of Ada programs for use on a variety of data processing systems. Adopts ANSI/MIL-STD-1815A-1983.

Software Engineering

FIPSPUB99 GUIDELINE: A FRAMEWORK FOR THE EVALUATION AND COMPARISON OF SOFTWARE DEVELOPMENT TOOLS, 1983 March 31.

Presents a framework for the evaluation and comparison of software development tools. The framework is a hierarchical structure of tool features that provides the level of detail necessary to classify the capabilities of tools. Through a careful analysis of tool features, users can obtain a better understanding of the characteristics of a tool and can compare these characteristics with those of other tools.

Software Maintenance

FIPSPUB106 GUIDELINE ON SOFTWARE MAINTENANCE, 1984 June 15.

Presents information on techniques, procedures, and methodologies to employ throughout the lifecycle of a software system to improve the maintainability of that system. Included is a glossary of technical terms. Appendices provide information on software maintenance process; how to decide whether or not to continue maintaining a system: and software maintenance tools.

Validation, Verification, and Testing

FIPSPUB101 GUIDELINE FOR LIFECYCLE VALIDATION, VERIFICATION, AND TESTING OF COMPUTER SOFTWARE, 1983 June 6.

Presents an integrated approach to validation, verification, and testing (VV&T) that should be used throughout the software lifecycle. Also included is a glossary of technical terms and a list of supporting NBS publication. An appendix provides an outline for formulating a VV&T plan.

(4) DATA STANDARDS AND GUIDELINES

Representations and Codes

FIPSPUB4 CALENDAR DATE, 1968 November 1.

Specifies codes to identify years, months and dates of the Gregorian calendar. FIPS PUB 4 is being revised to adopt ANSI X3.30-1985.

FIPSPUB5-1 STATES AND OUTLYING AREAS OF THE UNITED STATES, 1970 June 15.

Provides abbreviations and two-digit numeric codes for states, the District of Columbia and outlying areas such as Puerto Rico, Virgin Islands, and other U.S. territories.

FIPSPUB6-3 COUNTIES AND COUNTY EQUIVALENTS OF THE STATES OF THE UNITED STATES AND DISTRICT OF COLUMBIA, 1979 December 15.

Provides names and three-digit numeric codes for counties or county equivalents in the U.S.

(4) DATA STANDARDS AND GUIDELINES—Continued

Representations and Codes—Continued

FIPSPUB8-5 METROPOLITAN STATISTICAL AREAS (MSAs) (Including CMSAs, PMSAs, and NECMAs), 1984 October 31.

Provides a four-digit numeric code for each Metropolitan Statistical Area in the U.S. and Puerto Rico, including units called Consolidated Metropolitan Statistical Areas (CMSAs), and Primary Metropolitan Statistical Areas (PMSAs), and related units called New England County Metropolitan Areas (NECMAs).

FIPSPUB9 CONGRESSIONAL DISTRICTS OF THE UNITED STATES, 1969 November 14.

Specifies the use of two-digit numeric codes to represent the Congressional Districts of each State of the U.S. as identified in the "Congressional Directory."

FIPSPUB10-3 COUNTRIES, DEPENDENCIES, AREAS OF SPECIAL SOVEREIGNTY, AND THEIR PRINCIPAL ADMINISTRATIVE DIVISIONS, 1984 February 9.

Provides a list of the basic geopolitical entities in the world, together with the principal administrative divisions that comprise each entity. Each basic geopolitical entity is represented by a two-character, alphabetic country code. Each principal administrative division is identified by a four-character code consisting of the two-character country code followed by a two-character administrative division code. These codes are intended for use in activities associated with the mission of the Department of State and in National defense programs. For country codes adopted by the American National Standards Institute, see FIPS PUB 104.

FIPSPUB19-1 CATALOG OF WIDELY USED CODE SETS, 1985 January 7.

Lists and briefly describes code sets that are in wide use in the U.S. and that might be used in Federal data systems. Assists in the selection of appropriate code sets and in the avoidance of duplicate developments. The common format that is used to describe each listed code set specifies code characteristics, maintenance agency, source document, and other pertinent data.

FIPSPUB28 STANDARDIZATION OF DATA ELEMENTS AND REPRESENTATIONS, 1973 December 5.

Defines policies and responsibilities for a government-wide program for the standardization of data elements and representations used in Federal automated data systems.

FIPSPUB45 GUIDE FOR THE DEVELOPMENT, IMPLEMENTATION AND MAINTENANCE OF STANDARDS FOR THE REPRESENTATION OF COMPUTER PROCESSED DATA ELEMENTS, 1976 September 30.

Provides basic concepts and terminology of data standardization, describes data characteristics, basic coding methods, and principles of data code development.

FIPSPUB55DC GUIDELINE: CODES FOR NAMED POPULATED PLACES, PRIMARY COUNTY DIVISIONS, AND OTHER LOCATIONAL ENTITIES OF THE UNITED STATES, 1983 November 1.

Provides at two-character State code and five-character numeric place code to uniquely identify each listed entity. An exhaustive list is carried of incorporated places, census designated places, primary county divisions, recognized Indian reservations and Alaska Native villages, and counties. For the data files, request the third printed version (hard copy/microfiche) *or* the ninth update tape. Implements ANSI X3.47-1977.

FIPSPUB55-2 GUIDELINE: CODES FOR NAMED POPULATED PLACES, PRIMARY COUNTY DIVISIONS, AND OTHER LOCATIONAL ENTITIES OF THE UNITED STATES AND OUTLYING AREAS, 1987 February 3.

Same as FIPS PUB 55DC; (DOCUMENTATION ONLY).

(4) DATA STANDARDS AND GUIDELINES—Continued

Representations and Codes—Continued

FIPSPUB58 REPRESENTATIONS OF LOCAL TIME OF THE DAY FOR INFORMATION INTERCHANGE, 1979 February 1.

Specifies representations for the local time of the day based on both 12 and 24 hour timekeeping systems. Specifies the time elements and their sequencing, the use of separators between time elements, and the representation of the meridian designator. Adopts ANSI X3.43-1977. FIPS PUB 58 is being revised to adopt ANSI X3.43-1986.

FIPSPUB59 REPRESENTATIONS OF UNIVERSAL TIME, LOCAL TIME DIFFERENTIALS, AND UNITED STATES TIME ZONE REFERENCES FOR INFORMATION INTERCHANGE, 1979 February 1.

Specifies representations for Universal Time, the Local Time Differential Factors, and Local Time Zones in general use in the U.S. Adopts ANSI X3.51-1975. FIPS PUB 59 is being revised to adopt ANSI X3.51-1986.

FIPSPUB66 STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODES, 1979 August 15.

Provides classifications, short titles, and codes for representing industries and groups of establishments with similar economic activities.

FIPSPUB70-1 REPRESENTATION OF GEOGRAPHIC POINT LOCATIONS FOR INFORMATION INTERCHANGE, 1986 November 14.

Specifies uniform formats for representing geographic point locations that are to be used by Federal agencies in the interchange of data. The standard is applicable to the three point location systems most widely used in the United States. Adopts ANSI X3.61-1986.

FIPSPUB92 GUIDELINE FOR STANDARD OCCUPATIONAL CLASSIFICATION (SOC) CODES, 1983 February 24.

Adopts a code set developed by the Office of Management and Budget to identify types of occupational activities. The classification system includes all occupations in which work is performed for pay or profit.

FIPSPUB95 CODES FOR THE IDENTIFICATION OF FEDERAL AND FEDERALLY-ASSISTED ORGANIZATIONS, 1982 December 23.

Specifies a four-character identifier for Federal Government Legislative, Judicial and Executive Branch agencies, and for Federal-State, interstate and international organizations that receive budgetary support. Also includes government-sponsored enterprises and some Federally-aided organizations.

FIPSPUB103 CODES FOR THE IDENTIFICATION OF HYDROLOGIC UNITS IN THE UNITED STATES AND THE CARIBBEAN OUTLYING AREAS, 1983 November 15.

Identifies a hydrologic system that divides the United States and Caribbean outlying areas into 21 major regions. Regions are further subdivided into approximately 2150 units that delineate river basins having drainage areas usually greater than 700 square miles. The codes provide a standardized base for use by water-resources organizations. Adopts *Geological Survey Circular* 878-A.

FIPSPUB104-1 ANS CODES FOR THE REPRESENTATION OF NAMES OF COUNTRIES, DEPENDENCIES, AND AREAS OF SPECIAL SOVEREIGNTY FOR INFORMATION INTERCHANGE, 1986 May 12.

Codes are for use by Federal government organizations in reporting contract placement to the General Services Administration's Federal Procurement Data Center, for use in activities concerned with international trade that do not involve Department of State or national defense programs, and for data interchange with international organizations. Another code set, FIPS PUB 10-3, provides country codes for Department of State and defense applications. Implements ANSI Z39.27-1984, which adopts international standard ISO 3166 with qualifications.

(5) ADP OPERATIONS STANDARDS AND GUIDELINES

Benchmarking for Computer Selection

FIPSPUB42-1 GUIDELINES FOR BENCHMARKING ADP SYSTEMS IN THE COMPETITIVE PROCUREMENT ENVIRONMENT, 1977 May 15.

Recommends good practices for Federal agencies to use in planning, organizing, and conducting benchmark mix demonstrations for competitive computer system procurements.

FIPSPUB75 GUIDELINE ON CONSTRUCTING BENCHMARKS FOR ADP SYSTEM ACQUISITIONS, 1980 September 18.

Describes a practical, step-by-step procedure for constructing benchmarks for use during the competitive acquisition of ADP systems. Ten steps in the benchmark construction process are identified including selection of the benchmark team, workload analysis and forecasting, construction of the benchmark mix, and documentation of the benchmark package.

Computer Performance Management

FIPSPUB49 GUIDELINE ON COMPUTER PERFORMANCE MANAGEMENT: AN INTRODUCTION, 1977 May 1.

Details the responsibilities of ADP managers in meeting user requirements, managing and planning for ADP resources, communicating with upper management, and communicating with vendors.

FIPSPUB57 GUIDELINES FOR THE MEASUREMENT OF INTERACTIVE COMPUTER SERVICE RESPONSE TIME AND TURNAROUND TIME, 1978 August 1.

Provides a methodology for measuring interactive computer service response time and turnaround time. Addresses interactive computer utilization characterized by an interchange of input and output between a computer and a person utilizing a keyboard terminal and describes functional performance measures that can be employed.

FIPSPUB72 GUIDELINES FOR THE MEASUREMENT OF REMOTE BATCH COMPUTER SERVICE, 1980 May 1.

A basic reference document for use in measuring and evaluating the delivery of network services. This guide identifies availability, reliability, timeliness, and correctness as the attributes to be measured and recommends useful metrics.

FIPSPUB96 GUIDELINE FOR DEVELOPING AND IMPLEMENTING A CHARGING SYSTEM FOR DATA PROCESSING SERVICES, 1982 December 6.

Provides a methodology for developing and implementing a system to distribute the costs of providing data processing services to the users of the services. Identifies the major decisions and practices needed to set the rates for services, to bill for services, and to monitor the system.

Computer Security

FIPSPUB31 GUIDELINES FOR AUTOMATIC DATA PROCESSING PHYSICAL SECURITY AND RISK MANAGEMENT, 1974 June.

Provides guidance to Federal organizations in developing physical security and risk management programs for their ADP facilities. Can be used as a checklist for planning and evaluating security of computer systems.

FIPSPUB39 GLOSSARY FOR COMPUTER SYSTEMS SECURITY, 1976 February 15.

A reference document containing approximately 170 terms and definitions pertaining to privacy and computer security.

(5) ADP OPERATIONS STANDARDS AND GUIDELINES—Continued

Computer Security—Continued

FIPSPUB41 COMPUTER SECURITY GUIDELINES FOR IMPLEMENTING THE PRIVACY ACT OF 1974, 1975 May 30.

Provides guidance in the selection of technical and related procedural methods for protecting personal data in automated information systems. Discusses categories of risks and the related safeguards for physical security, information management practices, and system controls to improve system security.

FIPSPUB46 DATA ENCRYPTION STANDARD, 1977 January 15. (Reaffirmed until 1987.)

Specifies an algorithm to be implemented in electronic hardware devices and used for the cryptographic protection of computer data. The algorithm uniquely defines the mathematical steps required to transform computer data into a cryptographic cipher and the steps required to transform the cipher back to its original form. This standard has been adopted as a voluntary industry standard, ANSI X3.92-1981. FIPS PUB 46 is being reviewed to determine future applicability.

FIPSPUB48 GUIDELINES ON EVALUATION OF TECHNIQUES FOR AUTOMATED PERSONAL IDENTIFICATION, 1977 April 1.

Discusses the performance of personal identification devices, how to evaluate them, and considerations for their use within the context of computer system security.

FIPSPUB65 GUIDELINE FOR AUTOMATIC DATA PROCESSING RISK ANALYSIS, 1979 August 1.

Presents a technique for conducting a risk analysis of an ADP facility and related assets. Provides guidance on collecting, quantifying, and analyzing data related to the frequency of occurrence and the damage caused by adverse events.

FIPSPUB73 GUIDELINES FOR SECURITY OF COMPUTER APPLICATIONS, 1980 June 30.

Describes the different security objectives for a computer application, explains the control measures that can be used, and identifies the decisions that should be made at each stage in the life cycle of a sensitive computer application. For use in planning, developing and operating computer systems which require protection.

FIPSPUB74 GUIDELINES FOR IMPLEMENTING AND USING THE NBS DATA ENCRYPTION STANDARD, 1981 April 1.

Provides guidance for the use of cryptographic techniques when such techniques are required to protect sensitive or valuable computer data. For use in conjunction with FIPS PUB 81.

FIPSPUB81 DES MODES OF OPERATION, 1980 December 2.

Defines four modes of operation for the DES which may be used in a wide variety of applications. The modes specify how data will be encrypted (cryptographically protected) and decrypted (returned to original form). This standard has been adopted as a voluntary industry standard, ANSI X3.106-1983.

FIPSPUB83 GUIDELINE ON USER AUTHENTICATION TECHNIQUES FOR COMPUTER NETWORK ACCESS CONTROL, 1980 September 29.

Provides guidance in the selection and implementation of techniques for authenticating the users of remote terminals in order to safeguard against unauthorized access to computers and computer networks.

FIPSPUB87 GUIDELINES FOR ADP CONTINGENCY PLANNING, 1981 March 27.

Describes what should be considered when developing a contingency plan for an ADP facility. Provides a suggested structure and format which may be used as a starting point from which to design a plan to fit each specific operation.

(5) ADP OPERATIONS STANDARDS AND GUIDELINES—Continued

Computer Security—Continued

FIPSPUB102 GUIDELINE FOR COMPUTER SECURITY CERTIFICATION AND ACCREDITATION, 1983 September 27.

Describes how to establish and how to carry out a certification and accreditation program for computer security. Certification consists of a technical evaluation of a sensitive system to see how well it meets its security requirements. Accreditation is the official management authorization for the operation of the system and is based on the certification process.

FIPSPUB112 PASSWORD USAGE, 1985 May 30.

Defines ten factors to be considered in the design, implementation and use of access control systems that are based on passwords. It specifies minimum security criteria for such systems and provides guidance for selecting additional security criteria for password systems which must meet higher security requirements.

FIPSPUB113 COMPUTER DATA AUTHENTICATION, 1985 May 30.

Specifies a Data Authentication Algorithm (DAA) which, when applied to computer data, automatically and accurately detects unauthorized modifications, both intentional and accidental. Based on FIPS PUB 46, this standard is compatible with requirements adopted by the Department of Treasury and the banking community to protect electronic fund transfer transactions.

Management of Multivendor ADP Systems

FIPSPUB56 GUIDELINE FOR MANAGING MULTIVENDOR PLUG-COMPATIBLE ADP SYSTEMS, 1978 September 15.

Provides general assistance to Federal ADP managers responsible for the planning, acquisition, or operation of an ADP system that involves products or services obtained from multiple sources.

(6) CONFORMANCE TESTS

FIPSPUB122 CONFORMANCE TESTS FOR FIPS PUB 100/FED-STD 1041 VERSION OF CCITT 1980 RECOMMENDATION X.25, INTERFACE BETWEEN DATA TERMINAL EQUIPMENT (DTE) AND DATA CIRCUIT-TERMINATING EQUIPMENT (DCE) FOR OPERATION WITH PACKET-SWITCHED DATA COMMUNICATIONS NETWORKS, 1986 May 28.

Specifies a standard set of tests to evaluate DTE/DCE conformance to FIPS PUB 100/FED-STD 1041. Aids users in acquiring telecommunications facilities or services based on the CCITT Recommendation X.25.

FIPS PUBLICATIONS LIST BY FIPS NUMBER

1987 February

FIPS NO.	CATEGORY		TITLE—DATE	CHANGE NOTICES
0	(1)	P	General Description of FIPS Register 68 Nov 01	
1-2	(2&3)	S	Code for Information Interchange, Its Representations, Subsets, and Extensions (ANSI X3.4-1977, X3.32-1973, X3.41-1974) 84 Nov 14	
2-1	(2)	S	Perforated Tape Code for Information Interchange (ANSI X3.6-1965/R1983) 84 Nov 14	
3-1	(2)	S	Recorded Magnetic Tape for Information Interchange (800 CPI, NRZI) (ANSI X3.22-1973) 73 June 30	
4	(4)	S	Calendar Date 68 Nov 01	
5-1	(4)	S	States and Outlying Areas of the U.S. 70 June 15	9
6-3	(4)	S	Counties and County Equivalents of the States of the U.S. & District of Columbia 79 Dec 15	9
7			"WITHDRAWN"	1
8-5	(4)	S	Metropolitan Statistical Areas (MSAs) (Including CMSAs, PMSAs, and NECMAs) 84 Oct 31	4
9	(4)	S	Congressional Districts of the U.S. 69 Nov 14	2
10-3	(4)	S	Countries, Dependencies, Areas of Special Sovereignty, and Their Principal Admin. Divs. 84 Feb 09	5
11-2	(3)	G	Guideline: American National Dictionary for Inform. Processing Systems (X3/TR-1-82) 83 May 09	
12-2			"WITHDRAWN"	1
13	(2)	S	Rectangular Holes in Twelve-Row Punched Cards (ANSI X3.21-1967/R1980) 71 Oct 01	
14-1	(2)	S	Hollerith Punched Card Code (ANSI X3.26-1980) 80 Dec 24	
15			"WITHDRAWN"	1
16-1	(2)	S	Bit Sequencing of Code for Information Interchange in Serial-By-Bit Data Transmission (ANSI X3.15-1976/R1983) 77 Sept 01	
17-1	(2)	S	Character Structure and Char. Parity Sense for Serial-By-Bit Data Communication in the Code for Inform. Interchg. (ANSI X3.16-1976/R1983) 77 Sept 01	
18-1	(2)	S	Character Structure and Char. Parity Sense for Parallel-By-Bit Data Communication in the Code for Inform. Interchg. (ANSI X3.25-1976/R1983) 77 Sept 01	
19-1	(4)	G	Catalog of Widely Used Code Sets 85 Jan 07	1

FIPS PUBLICATIONS LIST BY FIPS NUMBER (contd.)

1987 February

FIPS NO.	CATEGORY		TITLE—DATE	CHANGE NOTICES
20	(3)	G	Guidelines for Describing Information Interchange Formats 72 Mar 01	
21-2	(3)	S	COBOL (ANSI X3.23-1985) 86 Mar 18	
22-1	(2)	S	Synchronous Signaling Rates Between Data Terminal and Data Communication Equip. (ANSI X3.1-1976) 77 Sept 01	
23			"WITHDRAWN"	1
24	(3)	S	Flowchart Symbols and Their Usage in Information Processing (ANSI X3.5-1970) 73 June 30	
25	(2)	S	Recorded Magnetic Tape for Information Interchg. (1600 CPI, Phase Encoded) (ANSI X3.39-1973) 73 June 30	
26	(2)	S	One-Inch Perforated Paper Tape for Information Interchange (ANSI X3.18-1967/R1974&1982) 73 June 30	
27	(2)	S	Take-Up Reels for One-Inch Perforated Tape for Information Interchg. (ANSI X3.20-1967/R1982) 73 June 30	
28	(4)	P	Standardization of Data Elements and Representations 73 Dec 05	1
29-1	(1&3)	P	Interpretation Procedures for Federal Information Processing Standard Programming Languages 81 Dec 31	
30	(3)	S	Software Summary for Describing Computer Programs and Automated Data Systems 74 June 30	
31	(5)	G	Guidelines for Automatic Data Processing Physical Security and Risk Management 74 June --	
32-1	(2)	S	Character Sets for Optical Char. Recognition (OCR) (ANSI X3.2-1970/R1976, X3.17-1981, X3.49-1975/R1982) 82 June 25	
33-1	(2)	S	Character Set for Handprinting. (ANSI X3.45-1982) 84 Nov 05	
34	(1)	P	Guide for the Use of International System of Units (SI) in Federal Information Processing Standards Publications 75 Jan 01	
35			"WITHDRAWN"	1
36			"WITHDRAWN"	1
37	(2)	S	Synchronous High Speed Data Signaling Rates Between Data Terminal Equipment and Data Communications Equipment (ANSI X3.36-1975) 75 June 15	
38	(3)	G	Guidelines for Documentation of Computer Programs and Automated Data Systems 76 Feb 15	
39	(5)	G	Glossary for Computer Systems Security 76 Feb 15	

FIPS PUBLICATIONS LIST BY FIPS NUMBER (contd.)

1987 February

FIPS NO.	CATEGORY		TITLE—DATE	CHANGE NOTICES
40	(2)	G	Guideline for Optical Character Recognition Forms 76 May 01	
41	(5)	G	Computer Security Guidelines for Implementing the Privacy Act of 1974 75 May 30	
42-1	(5)	G	Guidelines for Benchmarking ADP Systems in the Competitive Procurement Environment 77 May 15	
43			"WITHDRAWN"	1
44			"WITHDRAWN"	1
45	(4)	G	Guide for the Development, Implementation & Maintenance of Standards for the Representation of Computer Processed Data Elements 76 Sept 30	
46	(5)	S	Data Encryption Standard 77 Jan 15	1
47			"WITHDRAWN"	1
48	(5)	G	Guidelines on Evaluation of Techniques for Automated Personal Identification 77 Apr 01	
49	(5)	G	Guideline on Computer Performance Management: An Introduction 77 May 01	
50	(2)	S	Recorded Magnetic Tape for Information Interchange, 6250 cpi (246 cpmm), Group Coded Recording (ANSI X3.54-1976) 78 Feb 01	
51	(2)	S	Magnetic Tape Cassettes for Information Interchange (3.810 mm [0.150 in] Tape at 32 bpmm [800 bpi], PE) (ANSI X3.48-1977) 78 Feb 01	
52	(2)	S	Recorded Magnetic Tape Cartridge for Inform. Interchg., 4-Track, 6.30 mm (1/4 in), 63 bpmm (1600 bpi), Phase Encoded (ANSI X3.56-1977) 78 July 15	
53	(3)	S	Transmittal Form for Describing Computer Magnetic Tape File Properties 78 Apr 01	
54	(2)	S	Computer Output Microform (COM) Formats and Reduction Ratios, 16 mm and 105 mm. 78 July 15	
55DC	(4)	G	Guideline: Codes for Named Populated Places Primary County Divisions, and Other Locational Entities of the United States 83 Nov 01	4
*55-2	(4)	G	Same as 55DC except without codes 87 Feb 03	
56	(5)	G	Guideline for Managing Multivendor Plug-Compatible ADP Systems 78 Sept 15	
57	(5)	G	Guidelines for the Measurement of Interactive Computer Service Response Time and Turnaround Time 78 Aug 01	

FIPS PUBLICATIONS LIST BY FIPS NUMBER (contd.)

1987 February

FIPS NO.	CATEGORY		TITLE—DATE	CHANGE NOTICES
58	(4)	S	Representations of Local Time of the Day for Information Interchange (ANSI X3.43-1977) 79 Feb 01	
59	(4)	S	Representations of Universal Time, Local Time Differentials, and United States Time Zone References for Information Interchange (ANSI X3.51-1975) 79 Feb 01	
60-2	(2)	S	I/O Channel Interface 83 July 29	1
61-1	(2)	S	Channel Level Power Control Interface 82 July 13	
62	(2)	S	Operational Specifications for Magnetic Tape Subsystems 79 Feb 16	1+F.R. notice
63-1	(2)	S	Operational Specifications for Variable Block Rotating Mass Storage Subsystems 83 Apr 14	
63-1	SUPPLEMENT		Additional Operational Specs for VBRMSS 83 Apr 14	
64	(3)	G	Guidelines for Documentation of Computer Programs and Automated Data Systems for the Initiation Phase 79 Aug 01	
65	(5)	G	Guideline for Automatic Data Processing Risk Analysis 79 Aug 01	
66	(4)	S	Standard Industrial Classification (SIC) Codes 79 Aug 15	
67	(2)	G	Guideline for Selection of Data Entry Equipment 79 Sept 30	
68-1	(3)	S	Minimal BASIC (ANSI X3.60-1978) 85 Dec 24	2
69-1	(3)	S	FORTRAN (ANSI X3.9-1978) 85 Dec 24	
70-1	(4)	S	Representation of Geographic Point Locations for Information Interchange (ANSI X3.61-1986) 86 Nov 14	
71	(2)	S	Advanced Data Communication Control Procedures (ADCCP) (ANSI X3.66-1979) 80 May 14	1
72	(5)	G	Guidelines for Measurement of Remote Batch Computer Service 80 May 01	
73	(5)	G	Guidelines for Security of Computer Applications 80 June 30	
74	(5)	G	Guidelines for Implementing and Using the NBS Data Encryption Standard 81 Apr 01	
75	(5)	G	Guideline on Constructing Benchmarks for ADP System Acquisitions 80 Sept 18	
76	(3)	G	Guideline for Planning and Using a Data Dictionary System 80 Aug 20	

FIPS PUBLICATIONS LIST BY FIPS NUMBER (contd.)

1987 February

FIPS NO.	CATEGORY		TITLE—DATE	CHANGE NOTICES
77	(3)	G	Guideline for Planning and Management of Database Applications 80 Sept 01	
78	(2)	G	Guideline for Implementing Advanced Data Communication Control Procs (ADCCP) 80 Sept 26	
79	(3)	S	Magnetic Tape Labels and File Structure for Information Interchange (ANSI X3.27-1978) 80 Oct 17	
80			"WITHDRAWN"	1
81	(5)	S	DES Modes of Operation 80 Dec 02	1
82	(2)	G	Guideline for Inspection and Quality Control for Alphanumeric Computer-Output Microforms (AIIM (NMA) MS1-1980) 80 Sept 26	
83	(5)	G	Guideline on User Authentication Techniques for Computer Network Access Control 80 Sept 29	
84	(2)	S	Microfilm Readers (ANSI/AIIM(NMA) MS20-1979) 80 Oct 31	
85	(2)	S	Optical Character Recognition (OCR) Inks (ANSI X3.86-1980) 80 Nov 07	
86	(2)	S	Additional Controls for Use with Amer. Natl. Std. Code for Inform. Interchg. (ANSI X3.64-1979) 81 Jan 29	2
87	(5)	G	Guidelines for ADP Contingency Planning 81 Mar 27	
88	(3)	G	Guideline on Integrity Assurance and Control in Database Administration 81 Aug 14	
89	(2)	S	Optical Character Recognition (OCR) Character Positioning (ANSI X3.93M-1981) 81 Sept 04	
90	(2)	G	Guideline for Optical Character Recognition (OCR) Print Quality (ANSI X3.99-1983) 83 Sept 29	
91	(2)	S	Magnetic Tape Cassettes for Information Interchange, Dual Track Complementary Return-To-Bias (CRB) Four-States Recording on 3.81-mm (0.150-in) Tape (ANSI X3.59-1981) 82 Mar 12	
92	(4)	G	Guideline for Standard Occupational Classification (SOC) Codes 83 Feb 24	
93	(2)	S	Parallel Recorded Magnetic Tape Cartridge for Information Interchange, 4-Track, 6.30 mm (1/4 in), 63 bpmm (1600 bpi), Phase Encoded (ANSI X3.72-1981) 82 June 29	

FIPS PUBLICATIONS LIST BY FIPS NUMBER (contd.)

1987 February

FIPS NO.	CATEGORY		TITLE—DATE	CHANGE NOTICES
94	(2)	G	Guideline on Electrical Power for ADP Installations 83 Sept 21	
95	(4)	S	Codes for the Identification of Federal and Federally-Assisted Organizations 82 Dec 23	21
96	(5)	G	Guideline for Developing and Implementing a Charging System for Data Processing Services 82 Dec 06	
97	(2)	S	Operational Specifications for Fixed Block Rotating Mass Storage Subsystems 83 Feb 04	
98	(3)	S	Message Format for Computer-Based Message Systems 83 Mar 01	1
99	(3)	G	Guideline: A Framework for the Evaluation and Comparison of Software Development Tools 83 Mar 31	
100	(2)	S	Interface Between Data Terminal Equipment (DTE) and Data Circuit-Terminating Equipment (DCE) for Operation with Packet-Switched Data Communications Networks (FEDSTD1041) 83 July 06	
101	(3)	G	Guideline for Lifecycle Validation, Verification, and Testing of Computer Software 83 June 06	
102	(5)	G	Guideline for Computer Security Certification and Accreditation 83 Sept 27	
103	(4)	S	Codes for the Identification of Hydrologic Units in the United States and the Caribbean Outlying Areas (USGS/CIRCULAR#878-A) 83 Nov 15	
104-1	(4)	S	ANS Codes for the Representation of Names of Countries, Dependencies, and Areas of Special Sovereignty for Information Interchange 86 May 12	
105	(3)	G	Guideline for Software Documentation Management 84 June 06	
106	(3)	G	Guideline on Software Maintenance 84 June 15	
107	(2&3)	S	Local Area Networks: Baseband Carrier-Sense Multiple Access with Collision Detection Access Method and Physical Layer Specifications and Link Layer Protocol (ANSI/IEEE 802.2&802.3) 84 Oct 31	
108	(2)	S	Alphanumeric Computer Output Microform Quality Test Slide (AIIM MS28-1983) 84 Nov 05	
109	(3)	S	Pascal (ANSI/IEEE 770X3.97-1983) 85 Jan 16	
110	(3)	G	Guideline for Choosing a Data Management Approach 84 Dec 11	

FIPS PUBLICATIONS LIST BY FIPS NUMBER (contd.)

1987 February

FIPS NO.	CATEGORY		TITLE—DATE	CHANGE NOTICES
111	(2)	S	Storage Module Interfaces (w/extens. for enhanced storage module interfaces) (ANSI X3.91M-1982) 85 Apr 18	
112	(5)	S	Password Usage 85 May 30	
113	(5)	S	Computer Data Authentication 85 May 30	
114	(2)	S	200 mm (8 in) Flexible Disk Cartridge Track Format Using Two-Frequency Recording at 6631 bprad on One Side—1.9 tpmm (48 tpi) for Information Interchange (ISO 5654/2) 85 Sept 30	
115	(2)	S	200 mm (8 in) Flexible Disk Cartridge Track Format Using Modified Frequency Modulation Recording at 13262 bprad on Two Sides—1.9 tpmm (48 tpi) for Information Interchange (ISO 7065/2) 85 Sept 30	
116	(2)	S	130 mm (5.25 in) Flexible Disk Cartridge Track Format Using Two-Frequency Recording at 3979 bprad on One Side—1.9 tpmm (48 tpi) for Information Interchange (ISO 6596/2) 85 Sept 30	
117	(2)	S	130 mm (5.25 in) Flexible Disk Cartridge Track Format Using Modified Frequency Modulation Recording at 7958 bprad on Two Sides—1.9 tpmm (48 tpi) for Information Interchange (ISO 7487/3) 85 Sept 30	
118	(3)	S	Flexible Disk Cartridge Labelling and File Structure for Information Interchange (ISO 7665) 85 Sept 30	
119	(3)	S	Ada (ANSI/MIL-STD-1815A-1983) 85 Nov 08	
120	(3)	S	Graphical Kernel System (GKS) (ANSI X3.124-1985) 86 Apr 18	
121	(2)	S	Videotex/Teletext Presentation Level Protocol Syntax (North American PLPS) (ANSI X3.110-1983/CS T500-1983) 86 May 06	
122	(6)	T	Conformance Tests for FIPS PUB 100/FED-STD 1041 Version of CCITT 1980 Recommendation X.25, etc. 86 May 28	
123	(3)	S	Specification for a Data Descriptive File for Information Interchange (DDF) (ANSI/ISO 8211-1985) 86 Sept 19	
124	(3)	G	Guideline on Functional Specifications for Database Management Systems 86 Sept 30	
125	(3)	S	MUMPS (ANSI/MDC X11.1-1984) 86 Nov 4	

*Being printed.

FIPS PUBLICATIONS LIST BY FIPS NUMBER (contd.)

1987 February

CATEGORY KEY:
(1) GENERAL PUBLICATIONS
(2) HARDWARE STANDARDS/GUIDELINES
(3) SOFTWARE STANDARDS/GUIDELINES
(4) DATA STANDARDS/GUIDELINES
(5) ADP OPERATIONS STANDARDS/GUIDELINES
(6) CONFORMANCE TESTS

S — Standard
G — Guideline
P — Program Information Document
T — Conformance Tests

FIPS NO.	CATEGORY	TITLE	DATE	PRICE
126	(3) S	Database Language NDL (ANSI X3.133-1986)	87 Mar 10	$31.50
127	(3) S	Database Language SQL (ANSI X3.135 - 1986)	87 Mar 10	$29.00
128	(3) S	Computer Graphics Metafile (CGM) (ANSI X3.122 - 1986)	87 Mar 16	$36.50
*129	(2) S	Optical Character Recognition (OCR)--Dot Matrix Character Sets for OCR-MA (ANSI X3.111 1986)	87 May 06	$14.50
*130	(2) S	Intelligent Peripheral Interface (IPI) (ANSI X3.129-1986, X3.130-1986, X3.132-1987, and X3.147-1987)	87 July 16	$71.00
*131	(2) S	Small Computer System Interface (SCSI) (ANSI X3.131-1986)	87 July 16	$29.00
*132	(3) G	Guideline for Software Verification and Validation Plans (ANSI/IEEE 1012-1986)	87 Nov 19	$21.50

FIPS PRICE LIST

1987 February

(These prices are subject to change.)

	Price	
	Domestic	Foreign
FIPSSET/BAT (includes all available FIPS PUBS)	$1,500.00	$3,000.00
FIPS PUBS Subscription (Standing Order for 1 year)	$ 300.00	$ 600.00
FIPSSET plus FIPS PUBS Subscription for 1 year	$1,800.00	$3,600.00
Binders (each)	$ 7.00	$ 14.00

SINGLE COPY PRICE

NTIS Item No. Includes	Paper Copy Domestic/Foreign (1)		Microfiche Domestic/Foreign		Mag. Tape Order No./ Price (2) Domestic/Foreign
FIPSPUB0/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB1-2/BAT ANSI X3.4-1977 ANSI X3.32-1973 ANSI X3.41-1974	$25.50	$51.00	*	*	
FIPSPUB2-1/BAT X3.6-1965/R1983	$ 9.95	$19.90	*	*	
FIPSPUB3-1/BAT ANSI X3.22-1973	$ 9.95	$19.90	*	*	
FIPSPUB4/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB5-1/BAT	$ 9.95	$19.90	$ 6.50	$13.00	(No tape)
FIPSPUB6-3/BAT	$11.95	$23.90	$ 6.50	$13.00	(No tape)
FIPSPUB7/BAT	WITHDRAWN				
FIPSPUB8-5/BAT	$13.95	$27.90	$ 6.50	$13.00	PB85-161115/AS $175.00 $350.00
FIPSPUB9/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB10-3/BAT	$13.95	$27.90	$ 6.50	$13.00	PB85-222859/AS $175.00 $350.00
FIPSPUB11-2/BAT X3/TR-1-82	$28.00	$56.00	*	*	
FIPSPUB12-2/BAT	WITHDRAWN				
FIPSPUB13/BAT X3.21-1967/R1980	$ 9.95	$19.90	*	*	
FIPSPUB14-1/BAT ANSI X3.26-1980	$ 9.95	$19.90	*	*	
FIPSPUB15/BAT	WITHDRAWN				
FIPSPUB16-1/BAT X3.15-1976/R83	$ 9.95	$19.90	*	*	
FIPSPUB17-1/BAT X3.16-1976/R83	$ 9.95	$19.90	*	*	
FIPSPUB18-1/BAT X3.25-1976/R83	$ 9.95	$19.90	*	*	
FIPSPUB19-1/BAT	$13.95	$27.90	$ 6.50	$13.00	
FIPSPUB20/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB21-2/BAT ANSI X3.23-1985	$42.00	$84.00	*	*	
FIPSPUB22-1/BAT ANSI X3.1-1976	$ 9.95	$19.90	*	*	

*Not available in microfiche.
**Being printed.

SINGLE COPY PRICE

NTIS Item No. Includes	Paper Copy Domestic/Foreign (1)		Microfiche Domestic/Foreign		Mag. Tape Order No./ Price (2) Domestic/Foreign
FIPSPUB23/BAT	WITHDRAWN				
FIPSPUB24/BAT ANSI X3.5-1970	$11.95	$23.90	*	*	
FIPSPUB25/BAT ANSI X3.39-1973	$ 9.95	$19.90	*	*	
FIPSPUB26/BAT X3.18-1967/R74&82	$ 9.95	$19.90	*	*	
FIPSPUB27/BAT X3.20-1967/R1982	$ 9.95	$19.90	*	*	
FIPSPUB28/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB29-1/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB30/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB31/BAT	$13.95	$27.90	$ 6.50	$13.00	
FIPSPUB32-1/BAT X3.2-1970/R1976 X3.17-1981 X3.49-1975/R1982	$18.95	$37.90	*	*	
FIPSPUB33-1/BAT ANSI X3.45-1982	$11.95	$23.90	*	*	
FIPSPUB34/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB35/BAT	WITHDRAWN				
FIPSPUB36/BAT	WITHDRAWN				
FIPSPUB37/BAT ANSI X3.36-1975	$ 9.95	$19.90	*	*	
FIPSPUB38/BAT	$13.95	$27.90	$ 6.50	$13.00	PB82-179169/BAT $175.00 $350.00/Docu.
FIPSPUB39/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB40/BAT	$13.95	$27.90	$ 6.50	$13.00	
FIPSPUB41/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB42-1/BAT	$11.95	$23.90	$ 6.50	$13.00	
FIPSPUB43/BAT	WITHDRAWN				
FIPSPUB44/BAT	WITHDRAWN				
FIPSPUB45/BAT	$13.95	$27.90	$ 6.50	$13.00	
FIPSPUB46/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB47/BAT	WITHDRAWN				
FIPSPUB48/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB49/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB50/BAT ANSI X3.54-1976	$11.95	$23.90	*	*	
FIPSPUB51/BAT ANSI X3.48-1977	$11.95	$23.90	*	*	
FIPSPUB52/BAT ANSI X3.56-1977	$ 9.95	$19.90	*	*	
FIPSPUB53/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB54/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
**FIPSPUB55-2/BAT DOCUMENTATION	$11.95	$23.90	$ 6.50	$13.00	
FIPSPUB55DC/BAT DATA CODES	$42.00	$84.00	$42.00	$84.00	PB87-142436/BAT $500.00

SINGLE COPY PRICE

NTIS Item No. Includes	Paper Copy Domestic/Foreign (1)		Microfiche Domestic/Foreign		Mag. Tape Order No./ Price (2) Domestic/Foreign
FIPSPUB56/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB57/BAT	$11.95	$23.90	$ 6.50	$13.00	
FIPSPUB58/BAT ANSI X3.43-1977	$ 9.95	$19.90	*	*	
FIPSPUB59/BAT ANSI X3.51-1975	$ 9.95	$19.90	*	*	
FIPSPUB60-2/BAT	$18.95	$37.90	$ 6.50	$13.00	
FIPSPUB61-1/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB62/BAT	$13.95	$27.90	$ 6.50	$13.00	
FIPSPUB63-1/BAT	$13.95	$27.90	$ 6.50	$13.00	
FIPSPUB63-1SUP/BAT	$13.95	$27.90	$ 6.50	$13.00	
FIPSPUB64/BAT	$11.95	$23.90	$ 6.50	$13.00	
FIPSPUB65/BAT	$11.95	$23.90	$ 6.50	$13.00	
FIPSPUB66/BAT	$11.95	$23.90	$ 6.50	$13.00	PB79-296331/BAT $175.00 $350.00
FIPSPUB67/BAT	$11.95	$23.90	$ 6.50	$13.00	
FIPSPUB68/BAT ANSI X3.60-1978	$13.95	$27.90	*	*	
FIPSPUB69-1/BAT ANSI X3.9-1978	$35.50	$71.00	*	*	
FIPSPUB70-1/BAT ANSI X3.61-1986	$15.50	$31.00	*	*	
FIPSPUB71/BAT ANSI X3.66-1979	$20.50	$41.00	*	*	
FIPSPUB72/BAT	$11.95	$23.90	$ 6.50	$13.00	
FIPSPUB73/BAT	$13.95	$27.90	$ 6.50	$13.00	
FIPSPUB74/BAT	$11.95	$23.90	$ 6.50	$13.00	
FIPSPUB75/BAT	$11.95	$23.90	$ 6.50	$13.00	
FIPSPUB76/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB77/BAT	$13.95	$27.90	$ 6.50	$13.00	
FIPSPUB78/BAT	$11.95	$23.90	$ 6.50	$13.00	
FIPSPUB79/BAT ANSI X3.27-1978	$15.50	$31.00	*	*	
FIPSPUB80/BAT	WITHDRAWN				
FIPSPUB81/BAT	$11.95	$23.90	$ 6.50	$13.00	
FIPSPUB82/BAT NMA MS1-1980	$18.00	$36.00	*	*	
FIPSPUB83/BAT	$11.95	$23.90	$ 6.50	$13.00	
FIPSPUB84/BAT ANSI/NMA MS20-1979	$13.50	$27.00	*	*	
FIPSPUB85/BAT ANSI X3.86-1980	$11.95	$23.90	*	*	
FIPSPUB86/BAT ANSI X3.64-1979	$18.00	$36.00	*	*	
FIPSPUB87/BAT	$11.95	$23.90	$ 6.50	$13.00	
FIPSPUB88/BAT	$13.95	$27.90	$ 6.50	$13.00	
FIPSPUB89/BAT ANSI X3.93M-1981	$ 9.95	$19.90	*	*	

SINGLE COPY PRICE

NTIS Item No. Includes	Paper Copy Domestic/Foreign (1)		Microfiche Domestic/Foreign		Mag. Tape Order No./ Price (2) Domestic/Foreign
FIPSPUB90/BAT ANSI X3.99-1983	$11.95	$23.90	*	*	
FIPSPUB91/BAT ANSI X3.59-1981	$ 9.95	$19.90	*	*	
FIPSPUB92/BAT	$11.95	$23.90	$ 6.50	$13.00	PB81-162513/BAT $175.00 $350.00
FIPSPUB93/BAT ANSI X3.72-1981	$ 9.95	$19.90	*	*	
FIPSPUB94/BAT	$18.95	$37.90	$ 6.50	$13.00	
FIPSPUB95/BAT	$13.95	$27.90	$ 6.50	$13.00	
FIPSPUB96/BAT	$13.95	$27.90	$ 6.50	$13.00	
FIPSPUB97/BAT	$13.95	$27.90	$ 6.50	$13.00	
FIPSPUB98/BAT	$13.95	$27.90	$ 6.50	$13.00	
FIPSPUB99/BAT	$11.95	$23.90	$ 6.50	$13.00	
FIPSPUB100/BAT FEDSTD1041	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB101/BAT	$11.95	$23.90	$ 6.50	$13.00	
FIPSPUB102/BAT	$13.95	$27.90	$ 6.50	$13.00	
FIPSPUB103/BAT USGS/CIR#878-A	$18.95	$37.90	$ 6.50	$13.00	
FIPSPUB104-1/BAT	$11.95	$23.90	$ 6.50	$13.00	(No tape)
FIPSPUB105/BAT	$11.95	$23.90	$ 6.50	$13.00	
FIPSPUB106/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB107/BAT ANSI/IEEE 802.2&802.3	$38.50	$77.00	*	*	
FIPSPUB108/BAT AIIM MS28-1983	$ 9.95	$19.90	*	*	
FIPSPUB109/BAT IEEE 770X3.97-1983	$23.00	$46.00	*	*	
FIPSPUB110/BAT	$11.95	$23.90	$ 6.50	$13.00	
FIPSPUB111/BAT ANSI X3.91M-1982	$15.50	$31.00	*	*	
FIPSPUB112/BAT	$13.95	$27.90	$ 6.50	$13.00	
FIPSPUB113/BAT	$ 9.95	$19.90	$ 6.50	$13.00	
FIPSPUB114/BAT ISO 5654/2	$18.00	$36.00	*	*	
FIPSPUB115/BAT ISO 7065/2	$20.50	$41.00	*	*	
FIPSPUB116/BAT ISO 6596/2	$20.50	$41.00	*	*	
FIPSPUB117/BAT ISO 7487/3	$20.50	$41.00	*	*	
FIPSPUB118/BAT ISO 7665	$33.00	$66.00	*	*	
FIPSPUB119/BAT ANSI/MIL-STD-1815A-1983	$23.00	$46.00	*	*	
FIPSPUB120/BAT ANSI X3.124-1985	$35.50	$71.00	*	*	

SINGLE COPY PRICE

NTIS Item No. Includes	Paper Copy Domestic/Foreign (1)		Microfiche Domestic/Foreign		Mag. Tape Order No./ Price (2)
FIPSPUB121/BAT ANSI X3.110-1983/ CS T500-1983	$18.00	$36.00	*	*	
FIPSPUB122/BAT	$15.50	$31.00	$ 6.50	$13.00	
FIPSPUB123/BAT ANSI/ISO 8211-1985	$13.50	$27.00	*	*	
FIPSPUB124/BAT	$11.95	$23.90	$ 6.50	$13.00	
FIPSPUB125/BAT ANSI/MDC X11.1-1984	$30.50	$61.00	--	--	

NOTE: The three letters at the end of the NTIS Item Number are media codes used to help NTIS marketers determine the most effective media in bringing various types of information to users' attention.

(1) Mexico and Canada are quoted Domestic prices.
(2) Items on magnetic tape should specify:

Character Code—ASCII or EBCDIC
Density—1600 bpi
Parity—odd or even.

Not all character codes and densities are available for all items. Call or write NTIS (see page 30) for information.

ORDERING INFORMATION

- Requests for *single or quantity orders* of FIPS PUBS should be sent to:

  National Technical Information Service (NTIS)
  U.S. Department of Commerce
  5285 Port Royal Road
  Springfield, VA 22161
  Telephone: (703) 487-4650
  FTS 737-4650

- *Discount prices* on quantity orders should also be referred to the above address and telephone number.

- *Change notices* (when applicable) are included when you order FIPS PUBS as single copy, complete set or subscription.

- *Subscriptions* to FIPS PUBS should be sent to:

  National Technical Information Service (NTIS)
  U.S. Department of Commerce
  Subscriptions
  5285 Port Royal Road
  Springfield, VA 22161
  Telephone: (703) 487-4630
  FTS 737-4630

- *Magnetic Tapes* can be ordered from:

  National Technical Information Service (NTIS)
  U.S. Department of Commerce
  Computer Products Support Group
  Room 1309A
  5285 Port Royal Road
  Springfield, VA 22161
  Telephone: (703) 487-4763
  FTS 737-4763

U.S. DEPARTMENT OF COMMERCE
National Technical Information Service
SPRINGFIELD, VA 22161

NTIS ORDER FORM

TELEPHONE ORDERS TELEX 89-9405 Telecopier (703) 321-8547 Subscriptions: (703) 487-4630
Call (703) 487-4650 (See reverse side for RUSH and EXPRESS ordering options)

- HANDLING FEE: A handling fee is required for each order except for Express, Rush, Subscription, or Pickup orders.
- SHIPPING: U.S.: Printed reports and microfiche copies are shipped First Class Mail or equivalent.
  FOREIGN: Regular service: Printed reports and microfiche copies are shipped surface mail.
  Air Mail service to Canada and Mexico: add $3 per printed report; $.75 per microfiche copy.
  Air Mail service to all other addresses: add $6 per printed report; $.75 per microfiche copy.
  SUBSCRIPTIONS and standing orders are sent surface mail; contact NTIS for air mail rates.

1 *Address Information*

DTIC Users Code:_____ Contract No. ___ ___ (Last six digits)

PURCHASER: DATE:_____

Last Name First Initial
Title
Company/Organization
Address
City/State/ZIP
Attention
Telephone number

SHIP TO (Enter ONLY if different from purchaser):

Last Name First Initial
Title
Company/Organization
Address
City/State/ZIP
Attention
Telephone number

2 *Method of Payment*

☐ Charge my NTIS Deposit Account ___ ___ ___ ___ ___-___

Charge my ☐ Amer. Express ☐ VISA ☐ MasterCard

Account No. _____ Exp. _____

Signature: _____
(Required to validate all orders)

☐ Check/Money order enclosed for $ _____

☐ Please bill **ADD $7.50 per Order** (See below for restrictions)†

Purchase Order No. _____

Employer Identification No. ___ ___ ___ ___ ___ ___ ___ ___ ___

3 *Order Selection* (For Computer products, see reverse)

Enter NTIS order number(s) followed by title(s). Group titles after order numbers. (Ordering by title only will delay your order)	Customer Routing†† (up to 8 digits)	QUANTITY Paper Copy	QUANTITY Micro-fiche	UNIT PRICE	Foreign Air Mail	TOTAL PRICE
1. /BAT						
2. /BAT						
3. /BAT						
4. /BAT						
5. /BAT						
6. /BAT						
7. /BAT						

☐ **OVER** - Order continued on reverse

SUBTOTAL From Other Side	
Regular Service Handling Fee per order ($3 U.S., Canada, Mexico; $4 others)	
Billing Fee if required ($7.50)	
GRAND TOTAL	

† Billing Service: This service is restricted to U.S. addresses for an additional $7.50 per order. Your business employer identification number plus phone number of the office paying the bill are required. A late payment charge will be applied to all billings more than 30 days overdue.

†† Customer Routing Code: NTIS can label each item for routing within your organization. If you want this service, put your routing code in this box.

U.S DEPARTMENT OF COMMERCE
National Technical Information Service
SPRINGFIELD, VA 22161

NTIS ORDER FORM - Side 2

3 *Order Selection (Cont.)*

Enter the NTIS order number(s) or title(s). Group titles after order numbers. (Ordering by title only will delay your order)	Customer Routing ††	QUANTITY: Paper Copy	QUANTITY: Micro-fiche	UNIT PRICE	Foreign Air Mail	TOTAL PRICE
8. /BAT						
9. /BAT						
10. /BAT						
11. /BAT						
12. /BAT						
13. /BAT						
14. /BAT						
15. /BAT						
16. /BAT						
17. /BAT						
18. /BAT						
19. /BAT						
					Subtotal	

ENTER this amount on the other side of this form. ⇨

4 *Computer Products Order Selection*

If you have questions about a particular computer product, please call our Computer Products Support Group at (703) 487-4763.

Enter the NTIS order number(s) or title(s) of the diskette or magnetic tape products. (Ordering by title only will delay your order)	Customer Routing ††	TAPE DENSITY (9 track): 1600bpi	TAPE DENSITY (9 track): 6250bpi	TOTAL PRICE
20.				
21.				
22.				
23.				
			Subtotal	

All magnetic tapes are sent air mail or equivalent service to both U.S. and foreign addresses.

ENTER this amount on the other side of this form. ⇨

SPECIAL RUSH and EXPRESS ORDERING OPTIONS

Telephone: (800) 336-4700
in Virginia call
(703) 487-4700

RUSH SERVICE: Orders are processed within 24 hours and sent Air Mail or equivalent.
- Pick up at NTIS - $7.50 *per item*
- Delivery to U.S. addresses - $10 *per item*

EXPRESS SERVICE (U.S. Addresses Only): Orders are processed within 24 hours AND delivered by overnight courier for an additional $20 *per item*.

Rev. 3/5/87

CROSS INDEX OF FIPS AND RELATED STANDARDS

1987 February

(This cross index provides the related national and international standards for the FIPS. In most cases, the FIPS adopts the related standard or standards. However, in some cases, the FIPS predates the related national or international standard, or limits options established by the national or international standard. The information in this index was compiled by ICST based on the best available data. Comments, additions and recommended changes are welcomed.)

FIPS NO.	TITLE	FEDERAL STANDARD	NATIONAL STANDARD	INTER-NATIONAL STANDARD	REFERENCE DOCUMENTS	COMMENTS
0	General Description of FIPS Register					
1-2	Code for Information Interchange, Its Representations, Subsets, and Extensions		ANSI X3.4-1986 ANSI X3.32-1973 ANSI X3.41-1974			FIPS 1-2 limits Federal implementation to 3 subsets derived from ANSI X3.4-1977.
2-1	Perforated Tape Code for Information Interchange		ANSI X3.6-1965/ R1983			
3-1	Recorded Magnetic Tape for Information Interchange (800 CPI, NRZI)		ANSI X3.22-1983			FIPS 3-1 is being revised to adopt ANSI X3.22-1983.
4	Calendar Date		ANSI X3.30-1985			FIPS 4 is being revised to adopt ANSI X3.30-1985.
5-1	States and Outlying Areas of the U.S.		ANSI X3.38-1972			FIPS 5-1 and ANSI X3.38-1972 are being revised.
6-3	Counties and County Equivalents of the States of the U.S. & District of Columbia		ANSI X3.31-1973			ANSI X3.31-1973 is being revised. FIPS 6-3 is unaffected by this revision.
7	"WITHDRAWN"					
8-5	Metropolitan Statistical Areas (MSAs) (Including CMSAs, PMSAs, and NECMAs)					
9	Congressional Districts of the U.S.					
10-3	Countries, Dependencies, Areas of Special Sovereignty, and Their Prinicipal Admin. Divs.					

FIPS NO.	TITLE	FEDERAL STANDARD	NATIONAL STANDARD	INTER-NATIONAL STANDARD	REFERENCE DOCUMENTS	COMMENTS
11-2	Guideline: American National Dictionary for Information Processing Systems		X3/TR-1-82			
12-2	"WITHDRAWN"					
13	Rectangular Holes in Twelve-Row Punched Cards		ANSI X3.21-1967/ R1980			
14-1	Hollerith Punched Card Code		ANSI X3.26-1980			
15	"WITHDRAWN"					
16-1	Bit Sequencing of Code for Information Interchange in Serial-By-Bit Data Transmission	FED-STD 1010	ANSI X3.15-1976/ R1983			Joint FIPS/FED-STD.
17-1	Character Structure and Char. Parity Sense for Serial-By-Bit Data Communication in the Code for Information Interchange	FED-STD 1011	ANSI X3.16-1976/ R1983			Joint FIPS/FED-STD.
18-1	Character Structure and Char. Parity Sense for Parallel-By-Bit Data Communication in the Code for Inform. Interchange	FED-STD-1012	ANSI X3.25-1976/ R1983			Joint FIPS/FED-STD.
19-1	Catalog of Widely Used Code Sets					
20	Guidelines for Describing Information Interchange Formats		ANSI X10.1-1973			
21-2	COBOL		ANSI X3.23-1985	ISO 1989-1985		FIPS 21-2 adopts ANSI X3.23-1985 with additional requirements for the flagging of the use of certain language elements.
22-1	Synchronous Signaling Rates Between Data Terminal and Data Communi. Equip.	FED-STD 1013	ANSI X3.1-1976			Joint FIPS/FED-STD.
23	"WITHDRAWN"					

CROSS INDEX OF FIPS AND RELATED STANDARDS (contd.)

FIPS NO.	TITLE	FEDERAL STANDARD	NATIONAL STANDARD	INTER-NATIONAL STANDARD	REFERENCE DOCUMENTS	COMMENTS
24	Flowchart Symbols and Their Usage in Information Processing		ANSI X3.5-1970			
25	Recorded Magnetic Tape for Information Interchange (1600 CPI, Phase Encoded)		ANSI X3.39-1986			FIPS 25 adopts ANSI X3.39-1973 w/qualif. and is being revised to adopt ANSI X3.39-1986.
26	One-Inch Perforated Paper Tape for Information Interchange		ANSI X3.18-1967/ R1974 & R1982			
27	Take-Up-Reels for One-Inch Perforated Tape for Information Interchange		ANSI X3.20-1967/ R1982			
28	Standardization of Data Elements and Representations					
29-1	Interpretation Procedures for Federal Information Processing Standard Programming Languages					FIPS PUB 29-1 is being revised.
30	Software Summary for Describing Computer Programs and Automated Data Systems					
31	Guidelines for Automatic Data Processing Physical Security and Risk Management					
32-1	Character Sets for OCR		ANSI X3.2-1970/ R1976 ANSI X3.17-1981 ANSI X3.49-1975/ R1982	ISO 1004 ISO 1073/1 ISO 1073/11		
33-1	Character Set for Handprinting		ANSI X3.45-1982			
34	Guide for the Use of International System of Units (SI) in FIPS Publications					
35	"WITHDRAWN"					
36	"WITHDRAWN"					

FIPS NO.	TITLE	FEDERAL STANDARD	NATIONAL STANDARD	INTER-NATIONAL STANDARD	REFERENCE DOCUMENTS	COMMENTS
37	Synchronous High Speed Data Signaling Rates Between Data Terminal Equipment and Data Communications Equip.	FED-STD 1001	ANSI X3.36-1975 (ANSI withdrew 11-21-86.)			FIPS PUB 37 to be withdrawn.
38	Guidelines for Documentation of Computer Programs and Automated Data Systems					
39	Glossary for Computer Systems Security					
40	Guideline for Optical Character Recognition Forms		X3/TR-5-82			
41	Computer Security Guidelines for Implementing the Privacy Act of 1974					
42-1	Guidelines for Benchmarking ADP Systems in the Competitive Procurement Environment					
43	"WITHDRAWN"					
44	"WITHDRAWN"					
45	Guide for the Development, Implementation & Maintenance of Standards for the Representation of Computer Processed Data Elements					
46	Data Encryption Standard		ANSI X3.92-1981			
47	"WITHDRAWN"					
48	Guidelines on Evaluation of Techniques for Automated Personal Identification					
49	Guideline on Computer Performance Management: An Introduction					
50	Recorded Magnetic Tape for Information Interchange, 6250 cpi (246 cpmm), Group Coded Recording		ANSI X3.54-1986			FIPS 50 adopts ANSI X3.54-1976 w/qualifications and is being revised to adopt ANSI X3.54-1986.

CROSS INDEX OF FIPS AND RELATED STANDARDS (contd.)

FIPS NO.	TITLE	FEDERAL STANDARD	NATIONAL STANDARD	INTER-NATIONAL STANDARD	REFERENCE DOCUMENTS	COMMENTS
51	Magnetic Tape Cassettes for Information Interchange (3.810 mm [0.150 in] Tape at 32 bpmm [800 bpi], PE)		ANSI X3.48-1977			
52	Recorded Magnetic Tape Cartridge for Inform. Interchg, 4-Track, 6.30 mm (1/4 in), 63 bpmm (1600 bpi), Phase Encoded		ANSI X3.56-1977			FIPS 52 adopts ANSI X3.56-1977 w/qualif.
53	Transmittal Form for Describing Computer Magnetic Tape File Properties					
54	Computer Output Microform (COM) Formats and Reduction Ratios, 16 mm and 105 mm		ANSI/AIIM MS5-1985 & MS14-1987	ISO 1526-1975		FIPS 54 is being revised to adopt ANSI/AIIM Standards.
55DC	Guideline: Codes for Named Populated Places Primary County Divisions, and Other Locational Entities of the United States		ANSI X3.47-1977			ANSI X3.47-1977 is being revised. FIPS 55DC is unaffected by this revision.
55-2	Same as 55DC except without codes. (DOCU. ONLY)					
56	Guideline for Managing Multivendor Plug-Compatible ADP Systems					
57	Guidelines for the Measurement of Interactive Computer Service Response Time and Turnaround Time					
58	Representations of Local Time of the Day for Information Interchange		ANSI X3.43-1986			FIPS 58 is being revised to adopt ANSI X3.43-1986.
59	Representations of Universal Time, Local Time Differentials, and United States Time Zone References for Information Interchange		ANSI X3.51-1986			FIPS 59 is being revised to adopt ANSI X3.51-1986.
60-2	I/O Channel Interface		X3T9/600 Rev. 2-1976			

FIPS NO.	TITLE	FEDERAL STANDARD	NATIONAL STANDARD	INTER-NATIONAL STANDARD	REFERENCE DOCUMENTS	COMMENTS
61-1	Channel Level Power Control Interface		X3T9/666 Rev. 2-1976			
62	Operational Specifications for Magnetic Tape Subsystems					
63-1	Operational Specifications for Variable Block Rotating Mass Storage Subsystems		X3T9/780 Rev. 3-1978			
63-1 Suppl.	Additional Operational Specs for VBRMSS					
64	Guidelines for Documentation of Compter Programs and Automated Data Systems for the Initiation Phase					
65	Guideline for Automatic Data Processing Risk Analysis					
66	Standard Industrial Classification (SIC) Codes				OMB—SIC Manual 1987	FIPS 66 is being revised to reference SIC Manual—1987.
67	Guideline for Selection of Data Entry Equipment					
68-1	Minimal BASIC		ANSI X3.60-1978	ISO 6373-1984		
69-1	FORTRAN		ANSI X3.9-1978	ISO 1539-1980		
70-1	Representation of Geographic Point Locations for Information Interchange		ANSI X3.61-1986			
71	Advanced Data Communication Control Procedures (ADCCP)	FED-STD 1003	ANSI X3.66-1979			FIPS 71 adopts ANSI X3.66-1979 w/qualif.
72	Guidelines for the Measurement of Remote Batch Computer Service					
73	Guidelines for Security of Computer Applications					
74	Guidelines for Implementing and Using the NBS Data Encryption Standard					

FIPS NO.	TITLE	FEDERAL STANDARD	NATIONAL STANDARD	INTER-NATIONAL STANDARD	REFERENCE DOCUMENTS	COMMENTS
75	Guideline on Constructing Benchmarks for ADP System Acquisitions					
76	Guideline for Planning and Using a Data Dictionary System					
77	Guideline for Planning and Management of Database Applications					
78	Guideline for Implementing Advanced Data Communication Control Procedures (ADCCP)					
79	Magnetic Tape Labels and File Structure for Information Interchange		ANSI X3.27-1978 ANSI/ISO 4341-1984			FIPS 79 adopts ANSI X3.27-1978 w/qualif.
80	"WITHDRAWN"					
81	DES Modes of Operation		ANSI X3.106-1983			
82	Guideline for Inspection and Quality Control for Alphanumeric Computer-Output Microforms		AIIM (NMA) MS1-1980			
83	Guideline on User Authentication Techniques for Computer Network Access Control					
84	Microfilm Readers		ANSI/AIIM (NMA) MS20-1979			
85	Optical Character Recognition (OCR) Inks		ANSI X3.86-1980/R1987			
86	Additional Controls for Use with Amer. Natl. Std. Code for Information Interchange		ANSI X3.64-1979			
87	Guidelines for ADP Contingency Planning					
88	Guideline on Integrity Assurance and Control in Database Administration					
89	Optical Character Recognition (OCR) Character Positioning		ANSI X3.93M-1981			

FIPS NO.	TITLE	FEDERAL STANDARD	NATIONAL STANDARD	INTER-NATIONAL STANDARD	REFERENCE DOCUMENTS	COMMENTS
90	Guideline for Optical Character Recognition (OCR) Print Quality		ANSI X3.99-1983			
91	Magnetic Tape Cassettes for Information Interchange, Dual Track Complementary Return-To-Bias (CRB) Four-States Recording on 3.81-mm (0.150-in) Tape		ANSI X3.59-1981			FIPS 91 to be withdrawn.
92	Guideline for Standard Occupational Classification (SOC) Codes				SOC Manual 1980 & DOT/Dictionary of Occup. Titles, 4th/1977.	
93	Parallel Recorded Magnetic Tape Cartridge for Information Interchange, 4-Track, 6.30 mm (1/4 in), 63 bpmm (1600 bpi), Phase Encoded		ANSI X3.72-1981			
94	Guideline on Electrical Power for ADP Installations					
95	Codes for the Identification of Federal and Federally-Assisted Organizations					
96	Guideline for Developing and Implementing a Charging System for Data Processing Services					
97	Operational Specifications for Fixed Block Rotating Mass Storage Subsystems					
98	Message Format for Computer-Based Message System					FIPS 98 to be withdrawn.
99	Guideline: A Framework for the Evaluation and Comparison of Software Development Tools					
100	Interface Between Data Terminal Equipment (DTE) and Data Circuit-Terminating Equipment (DCE) for Operation with Packet-Switched Data Communications Networks	FED-STD 1041	ANSI X3.100-1983	CCITT Recommendation X.25		FIPS 100 adopts a subset of CCITT Recommendation X.25.

CROSS INDEX OF FIPS AND RELATED STANDARDS (contd.)

FIPS NO.	TITLE	FEDERAL STANDARD	NATIONAL STANDARD	INTER-NATIONAL STANDARD	REFERENCE DOCUMENTS	COMMENTS
101	Guideline for Lifecycle Validation, Verification, and Testing of Computer Software					
102	Guidelines for Computer Security Certification and Accreditation					
103	Codes for the Identification of Hydrologic Units in the United States and the Caribbean Outlying Areas		ANSI X3.145-1986		USGS Circular 878-A	
104-1	ANS Codes for the Representation of Names of Countries, Dependencies, and Areas of Special Sovereignty for Information Interchange		ANSI Z39.27-1984	ISO 3166		FIPS 104-1 implements ANSI Z39.27-1984.
105	Guideline for Software Documentation Management					
106	Guideline on Software Maintenance					
107	Local Area Networks: Baseband Carrier Sense Multiple Access with Collision Detection Access Method and Physical Layer Specifications & Link Layer Protocol		ANSI/IEEE 802.2-1985 & 803.2-1985	ISO/DIS 8802/2 ISO/DIS 8802/3		
108	Alphanumeric Computer Output Microform Quality Test Slide		AIIM MS28-1983			
109	Pascal		ANSI/IEEE770 X3.97-1983	ISO 7185-1983		
110	Guideline for Choosing a Data Management Approach					
111	Storage Module Interfaces (w/extensions for enhanced storage module interfaces)		ANSI X3.91M-1982			
112	Password Usage					
113	Computer Data Authentication		ANSI X3.92-1981 ANSI X9.9-1982			

FIPS NO.	TITLE	FEDERAL STANDARD	NATIONAL STANDARD	INTER-NATIONAL STANDARD	REFERENCE DOCUMENTS	COMMENTS
114	200 mm (8 in) Flexible Disk Cartridge Track Format Using Two-Frequency Recording at 6631 bprad on One Side-1.9 tpmm (48 tpi) for Inform. Interchg.			ISO 5654/2-1985		FIPS 114 adopts ISO 5654/2-1985 w/ qualifications.
115	200 mm (8 in) Flexible Disk Cartridge Track Format Using Modified Frequency Modulation Recording at 13262 bprad on Two Sides—1.9 tpmm (48 tpi) for Inform. Interchg.			ISO 7065/2-1985		FIPS 115 adopts ISO 7065/2-1985 w/ qualifications.
116	130 mm (5.25 in) Flexible Disk Cartridge Track Format Using Two-Frequency Recording at 3979 bprad on One Side—1.9 tpmm (48 tpi) for Inform. Interchg.			ISO 6596/2-1985		FIPS 116 adopts ISO 6596/2-1985 w/ qualifications.
117	130 mm (5.25 in) Flexible Disk Cartridge Track Format Using Modified Frequency Modulation Recording at 7958 bprad on Two Sides—1.9 tpmm (48 tpi) for Inform. Interchg.			ISO 7487/3-1984		FIPS 117 adopts ISO 7487/3-1984 w/ qualifications.
118	Flexible Disk Cartridge Labelling and File Structure for Information Interchange			ISO 7665-1983		FIPS 118 adopts ISO 7665-1983 w/ qualifications.
119	Ada		ANSI/MIL-STD-1815A-1983			
120	Graphical Kernel System (GKS)		ANSI X3.124-1985	ISO 7942-1985		
121	Videotex/Teletext Presentation Level Protocol Syntax (North American PLPS)		ANSI X3.110-1983/CSA T500-1983			

FIPS NO.	TITLE	FEDERAL STANDARD	NATIONAL STANDARD	INTER-NATIONAL STANDARD	REFERENCE DOCUMENTS	COMMENTS
122	Conformance Tests for FIPS PUB 100/FED-STD 1041 Version of CCITT 1980 Recommendation X.25, Interface Between Data Terminal Equipment (DTE) and Data Circuit-Terminating Equipment (DCE) for Operation With Packet-Switched Data Communications Networks					See FIPS 100.
123	Specification for a Data Descriptive File for Information Interchange (DDF)		ANSI/ISO 8211-1985	ANSI/ISO 8211-1985		
124	Guideline on Functional Specifications for Database Management Systems					
125	MUMPS		ANSI/MDC X11.1-1984			

ANNOUNCEMENT OF NEW PUBLICATIONS AND CHANGES IN THE FEDERAL INFORMATION PROCESSING STANDARDS PUBLICATION SERIES

Institute for Computer Sciences and Technology
Building 225, Room B-64
National Bureau of Standards
Gaithersburg, MD 20899

Please add my name to the *announcement* list of new publications to be issued in the Federal Information Processing Standards Publication Series of the National Bureau of Standards.

Name .....

Company .....

Address .....

.....

City..... State .....

Zip Code .....

(NOTIFICATION KEY 2068)