

NBS
Publi-
cations

National Bureau of Standards

DEC 7 1978

JK 468

ABAC



Reference

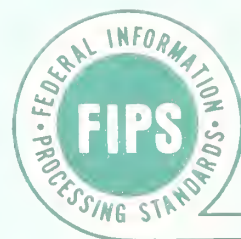
FIPS PUB 17-1

Supersedes FIPS PUB 17
1971 October 1

FEDERAL INFORMATION
PROCESSING STANDARDS PUBLICATION

1977 SEPTEMBER 1

U.S. DEPARTMENT OF COMMERCE / National Bureau of Standards



CHARACTER STRUCTURE
AND CHARACTER PARITY SENSE
FOR SERIAL-BY-BIT
DATA COMMUNICATION IN THE
CODE FOR INFORMATION INTERCHANGE

CATEGORY: HARDWARE STANDARD
SUBCATEGORY: TRANSMISSION

U.S. DEPARTMENT OF COMMERCE, *Juanita M. Kreps, Secretary*

Dr. Sidney Harman, Under Secretary

Jordan J. Baruch, Assistant Secretary for Science and Technology

NATIONAL BUREAU OF STANDARDS, *Ernest Ambler, Acting Director*

Foreword

The Federal Information Processing Standards Publication Series of the National Bureau of Standards is the official publication relating to standards adopted and promulgated under the provisions of Public Law 89-306, and Part 6 of Title 15 Code of Federal Regulations. The entire series constitutes the FEDERAL INFORMATION PROCESSING STANDARDS REGISTER.

The series is used to announce Federal Information Processing Standards, and to provide standards information of general interest and an index of relevant standards publications and specifications. Publications that announce adoption of standards provide the necessary policy, administrative, and guidance information for effective standards implementation and use. The technical specifications of the standard are usually attached to the publication, otherwise a reference source is cited.

Comments covering Federal Information Processing Standards and Publications are welcomed, and should be addressed to the Associate Director for ADP Standards, Institute for Computer Sciences and Technology, National Bureau of Standards, Washington, D.C. 20234. Such comments will be either considered by NBS or forwarded to the responsible activity as appropriate.

Ernest Ambler, Acting Director

Abstract

This standard specifies the method of transmitting the Standard Code for Information Interchange (FIPS 1) in the serial-by-bit, serial-by-character data transmission. This revision supersedes FIPS PUB 17 and reflects changes necessary to accommodate revisions prescribed by FIPS 1 when operating in either 7 or 8 bit coded environments. This standard is identified also as Federal Standard Number 1011.

Key words: American Standard Code for Information Interchange; ASCII; character parity sense; character structure; communications; data transmission; Federal Information Processing Standards; serial-by-bit; telecommunications; teleprocessing.

Nat. Bur. Stand. (U.S. Fed. Info. Process. Stand. Publ. (FIPS PUB) 17-1, 4 pages (1977)
CODEN FIPPAT



Federal Information Processing Standards Publication 17-1

1977 September 1



ANNOUNCING THE STANDARD FOR

CHARACTER STRUCTURE AND CHARACTER PARITY SENSE FOR SERIAL-BY-BIT DATA COMMUNICATION IN THE CODE FOR INFORMATION INTERCHANGE

Federal Information Processing Standards Publications are issued by the National Bureau of Standards pursuant to the Federal Property and Administrative Services Act of 1949, as amended, Public Law 89-306 (79 Stat. 1127), Executive Order 11717 (38 FR 12315, dated May 11, 1973), and Part 6 of Title 15 Code of Federal Regulations (CFR).

Name of Standard. Character Structure and Character Parity Sense for Serial-By-Bit Data Communication in the Code for Information Interchange.

Category of Standard. Hardware Standard, Transmission.

Explanation. This standard specifies the method of transmitting the Standard Code for Information Interchange (FIPS 1) in the serial-by-bit, serial-by-character data transmission. This revision supersedes FIPS PUB 17 and reflects changes necessary to accommodate revisions prescribed by FIPS 1 when operating in either 7 or 8 bit coded environments.

Approving Authority. Secretary of Commerce.

Maintenance Agency. Department of Commerce, National Bureau of Standards (Institute for Computer Sciences and Technology).

Cross Index.

a. American National Standard X3.16-1976, Character Structure and Character Parity Sense for Serial-By-Bit Data Communication in the American National Standard Code for Information Interchange.

b. FIPS PUB 1, Code for Information Interchange.

c. FIPS PUB 16-1, Bit Sequencing of the Code for Information Interchange in Serial-By-Bit Data Transmission.

d. FIPS PUB 18-1, Character Structure and Character Parity Sense for Parallel-By-Bit Data Communication in the Code for Information Interchange.

Applicability. Applicable to the transmission of the Standard Code in a serial bit stream form at the interface between data terminal equipment and data communications equipment. Data terminal equipments transmitting an approved Federal subset of FIPS 1 are not precluded.

Specifications. Federal Information Processing Standard 17-1 (FIPS 17-1), Character Structure and Character Parity Sense for Serial-By-Bit Data Communication in the Code for Information Interchange, is identified also as Federal Standard 1011 (affixed). This joint Federal Information Processing Standard and Federal Standard adopts American National Standard X3.16-1976,

Character Structure and Character Parity Sense for Serial-By-Bit Data Communication in the Code for Information Interchange.

Implementation Schedule. All applicable equipment ordered on or after the date of this FIPS PUB must be in conformance with this standard unless a waiver has been obtained in accordance with the procedure described below. Exceptions to this standard are made in the following cases:

- a. For equipment installed or on order prior to the date of this FIPS PUB.
- b. Where procurement actions are into the solicitation phase (i.e., Request for Proposals or Invitation for Bids have been issued) on the date of this FIPS PUB.

Waiver Procedure. Proposed waivers relating to the procurement of equipment using non-standard data rates will be coordinated in advance with the General Services Administration according to the procedures described in paragraph 3, CHANGES, of the Federal Standard affixed to this FIPS PUB. It is suggested that a request for waiver include the following information:

- a. A brief, narrative description of the existing or planned teleprocessing or data communication system to which the waiver applies, including:

- (1) Statement of purpose and principal function of the system.

- (2) Potential or planned use of the facilities employed with this system to interchange information with similar systems operated within the agency or by other agencies.

- b. A brief description of the system configuration, including a listing of accountable features, such as numbers and costs of data processors, terminals, modems, and communication lines, identifying those items to which the waiver applies.

Special Information. Federal Information Processing Standards are reviewed and revised periodically based upon changing requirements and the need to clarify or correct problems identified in their use. When a specific FIPS is cited or cross referenced in this publication, it should be noted that the most current version of it will be used. A list of current FIPS may be obtained from the NBS Office of ADP Standards Management, Washington, D.C. 20234.

Where to Obtain Copies. Copies of this publication are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161. When ordering, refer to Federal Information Processing Standards Publication 17-1 (NBS-FIPS-PUB-17-1) and title. Payment may be made by check, money order, or deposit account.

FEDERAL STANDARD

**TELECOMMUNICATIONS: CHARACTER STRUCTURE
AND CHARACTER PARITY SENSE FOR SERIAL-BY-
BIT DATA COMMUNICATION IN THE AMERICAN
NATIONAL STANDARD CODE FOR
INFORMATION INTERCHANGE**

This standard is issued by the General Services Administration pursuant to the Federal Property and Administrative Services Act of 1949, as amended, and Public Law 89-306. This standard has also been published as an integral part of Federal Information Processing Standards (FIPS) Publication 17-1. The application of this standard to data processing systems and telecommunication systems is mandatory on all Federal agencies.

1. Scope. This standard specifies the character structure and character parity sense for serial-by-bit data communication using the American National Standard for Information Interchange (ASCII).

1.1 Purpose. Federal telecommunication standards are to facilitate interoperability between telecommunication facilities and systems and compatibility of these systems at the computer-communications interface with data processing equipment.

1.2 Application. This standard is to be used by Federal agencies with other Federal Standards or design specifications describing functional, mechanical and procedural characteristics as necessary to achieve interoperability. Systems in existence on the date of this standard which are designed to a different character parity sense specification are not required to comply with the parity sense requirement in this standard. The parity sense required for 8 level perforated paper tape is not a part of this standard.

2. Reference Document. This standard adopts the following American National Standards Institute (ANSI) document to the extent specified herein:

X3.16-1976 Character Structure and Character Parity Sense for Parallel-by-Bit Data Communication in the American National Standard Code for Information Interchange

Copies may be obtained from ANSI, Inc., 1430 Broadway, New York, New York 10018. Federal agencies may obtain copies with FIPS Publication 17-1 from the National Technical Information Service, Document Processing Branch, 5285 Port Royal Road, Springfield, VA 22161.

3. Changes. When a Federal agency considers that this standard does not provide for its essential needs, a statement citing inadequacies shall be sent in duplicate to the General Services Administration, Federal Supply Service, FMH, Washington, DC 20406, in accordance with provisions of Federal Property Management Regulations 41 CFR 101-29.3. The General Services Administration will determine the appropriate action to be taken and will notify the agency.

PREPARING ACTIVITY:

National Communications System
Office of Technology and Standards
Washington, D.C. 20305

If you're looking for a solution to
your ADP standards problems . . .



...look for **FIPS**

DO YOU need up-to-date information on Federal Standards in the computer/information processing field?

MUST YOU keep abreast of standards adopted under PL 89-306 (Brooks Bill)?

THEN YOU need to subscribe to NBS FIPS Pub series! (Federal Information Processing Standards Publications Series of the National Bureau of Standards)

FIPS PUBLS contain Federal standards for hardware, software, applications and data. **FIPS PUBLS** provide information on new and revised Federal standards as they become available.

FIPS PUBLS are the official U.S. Government publications for Federal computer/information processing standards.

NBS TECHNICAL PUBLICATIONS

PERIODICALS

JOURNAL OF RESEARCH reports National Bureau of Standards research and development in physics, mathematics, and chemistry. It is published in two sections, available separately:

• **Physics and Chemistry (Section A)**

Papers of interest primarily to scientists working in these fields. This section covers a broad range of physical and chemical research, with particular emphasis on standards of physical measurement, fundamental constants, and properties of materials. Issued six times a year. Annual subscription: Domestic, \$17.00; Foreign, \$21.25.

• **Mathematical Sciences (Section B)**

Studies and communications designed mainly for the mathematician and theoretical physicist. Topics in mathematical statistics, theory of experiment design, numerical analysis, theoretical physics and chemistry, logical design, programming of computers and computer systems, and short numerical tables. Issued quarterly. Annual subscription: Domestic, \$9.00; Foreign, \$11.25.

DIMENSIONS/NBS (formerly Technical News Bulletin)—This monthly magazine is published to inform scientists, engineers, businessmen, industry, teachers, students, and consumers of the latest advances in science and technology, with primary emphasis on the work at NBS. The magazine highlights and reviews such issues as energy research, fire protection, building technology, metric conversion, pollution abatement, health and safety, and consumer product performance. In addition, it reports the results of Bureau programs in measurement standards and techniques, properties of matter and materials, engineering standards and services, instrumentation, and automatic data processing.

Annual subscription: Domestic, \$12.50; Foreign, \$15.65.

NONPERIODICALS

Monographs—Major contributions to the technical literature on various subjects related to the Bureau's scientific and technical activities.

Handbooks—Recommended codes of engineering and industrial practice (including safety codes) developed in cooperation with interested industries, professional organizations, and regulatory bodies.

Special Publications—Include proceedings of conferences sponsored by NBS, NBS annual reports, and other special publications appropriate to this grouping such as wall charts, pocket cards, and bibliographies.

Applied Mathematics Series—Mathematical tables, manuals, and studies of special interest to physicists, engineers, chemists, biologists, mathematicians, computer programmers, and others engaged in scientific and technical work.

National Standard Reference Data Series—Provides quantitative data on the physical and chemical properties of materials, compiled from the world's literature and critically evaluated. Developed under a world-wide program coordinated by NBS. Program under authority of National Standard Data Act (Public Law 90-396).

BIBLIOGRAPHIC SUBSCRIPTION SERVICES

The following current-awareness and literature-survey bibliographies are issued periodically by the Bureau:

Cryogenic Data Center Current Awareness Service. A literature survey issued biweekly. Annual subscription: Domestic, \$25.00; Foreign, \$30.00.

Liquified Natural Gas. A literature survey issued quarterly. Annual subscription: \$20.00.

NOTE: At present the principal publication outlet for these data is the Journal of Physical and Chemical Reference Data (JPCRD) published quarterly for NBS by the American Chemical Society (ACS) and the American Institute of Physics (AIP). Subscriptions, reprints, and supplements available from ACS, 1155 Sixteenth St. N.W., Wash. D. C. 20056.

Building Science Series—Disseminates technical information developed at the Bureau on building materials, components, systems, and whole structures. The series presents research results, test methods, and performance criteria related to the structural and environmental functions and the durability and safety characteristics of building elements and systems.

Technical Notes—Studies or reports which are complete in themselves but restrictive in their treatment of a subject. Analogous to monographs but not so comprehensive in scope or definitive in treatment of the subject area. Often serve as a vehicle for final reports of work performed at NBS under the sponsorship of other government agencies.

Voluntary Product Standards—Developed under procedures published by the Department of Commerce in Part 10, Title 15, of the Code of Federal Regulations. The purpose of the standards is to establish nationally recognized requirements for products, and to provide all concerned interests with a basis for common understanding of the characteristics of the products. NBS administers this program as a supplement to the activities of the private sector standardizing organizations.

Consumer Information Series—Practical information, based on NBS research and experience, covering areas of interest to the consumer. Easily understandable language and illustrations provide useful background knowledge for shopping in today's technological marketplace.

Order above NBS publications from: Superintendent of Documents, Government Printing Office, Washington, D.C. 20540.

Order following NBS publications—NBSIR's and FIPS from the National Technical Information Services, Springfield, Va. 22161.

Federal Information Processing Standards Publications (FIPS PUBS)—Publications in this series collectively constitute the Federal Information Processing Standards Register. Register serves as the official source of information in the Federal Government regarding standards issued by NBS pursuant to the Federal Property and Administrative Services Act of 1949 as amended, Public Law 89-306 (79 Stat. 1127), and as implemented by Executive Order 11717 (38 FR 12315, dated May 11, 1973) and Part 6 of Title 15 CFR (Code of Federal Regulations).

NBS Interagency Reports (NBSIR)—A special series of interim or final reports on work performed by NBS for outside sponsors (both government and non-government). In general, initial distribution is handled by the sponsor; public distribution is by the National Technical Information Services (Springfield, Va. 22161) in paper copy or microfiche form.

Superconducting Devices and Materials. A literature survey issued quarterly. Annual subscription: \$30.00. Send subscription orders and remittances for the preceding bibliographic services to National Bureau of Standards, Cryogenic Data Center (275.02) Boulder, Colorado 80302.

U.S. DEPARTMENT OF COMMERCE
National Technical Information Service
5285 Port Royal Road
Springfield, Virginia 22161

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF COMMERCE
COM-211

3rd Class Bulk Rate

