
JEDEC Format, Codes 91 and 92

Introduction

The JEDEC (Joint Electron Device Engineering Council) format is used to transfer fuse and test vector data between the programmer and a host computer. Code 91 is full format and includes all the data fields (such as note and test fields) described on the following pages. Code 92 is the Kernel, or shorter, format. The JEDEC Kernel format includes only the minimum information needed for the programming; it does not, for example, include information fields or test vector fields. Prior to transferring a JEDEC file, the appropriate Logic device must be selected.

JEDEC's legal character set consists of all the printable ASCII characters and four control characters. The four allowable control characters are STX, ETX, CR (RETURN), and LF (line feed). Other control characters, such as ESC or BREAK, should not be used.

*Note: This is Data I/O Corporation's implementation of JEDEC Standard 3A.
For a copy of the strict standard, write to:*

*Electronic Industries Association
Engineering Department
2001 Eye Street NW
Washington, D.C. 20006*

BNF Rules and Standard Definitions

The Backus-Naur Form (BNF) is used in the description here to define the syntax of the JEDEC format. BNF is a shorthand notation that follows these rules:

:: = denotes "is defined as."

Characters enclosed by single quotes are literals (required).

Angle brackets enclose identifiers.

Square brackets enclose optional items.

Braces {} enclose a repeated item. The item may appear zero or more times.

Vertical bars indicate a choice between items.

Repeat counts are given by a :n suffix. For example, a 6-digit number would be defined as:

<number> :: = <digit>:6

For example, in words the definition of a person's name reads:

The full name consists of an optional title followed by a first name, a middle name, and a last name. The person may not have a middle name, or may have several middle names. The titles consist of: Mr., Mrs., Ms., Miss, and Dr.

The BNF definition for a person's name is:

<full name> :: = [<title>] <f. name> {<m.name>} <l. name>

<title> :: = 'Mr.' | 'Mrs.' | 'Ms.' | 'Miss' | 'Dr.'

The following standard definitions are used throughout the rest of this document:

<digit> :: = '0' | '1' | '2' | '3' | '4' | '5' | '6' | '7' | '8' | '9'

<hex-digit> :: = <digit> | 'A' | 'B' | 'C' | 'D' | 'E' | 'F'

<binary-digit> :: = '0' | '1'

<number> :: = <digit> {<digit>}

 :: = <space> | <carriage return>

<delimiter> :: = {}

<printable character> :: = <ASCII 20 hex... 7E hex>

<control character> :: = <ASCII 00 hex... 1F hex> | <ASCII 7F hex>

<STX> :: = <ASCII 02 hex>

<ETX> :: = <ASCII 03 hex>

<carriage return> :: = <ASCII 0D hex>

<line feed> :: = <ASCII 0A hex>

<space> :: = <ASCII 20 hex> | "

<valid character> :: = <printable character> | <carriage return> | <line feed>

<field character> :: = <ASCII 20 hex... 29 hex> | <ASCII 2B hex... 7E hex> | <carriage return> | <line feed>

The Design Specification Field

<design spec> ::= {<field character>} '*'

The first field sent in a JEDEC transmission is the design specification. Both the full and kernel JEDEC formats accept the design specification field. This field is mandatory and does not have an identifier (such as an asterisk) signaling its beginning. The design specification field consists of general device information. It could, for example, consist of the following information: your name, your company's name, the date, the device name and manufacturer, design revision level, etc. This field is terminated by an asterisk character. Examine the sample transmission shown on the next page of this description—the first three lines of the file comprise the design specification field. The programmer ignores the contents of this field for downloads and places "Data I/O" in this field for upload operations.

Note: You do not need to send any information in this field if you do not wish to; a blank field, consisting of the terminating asterisk, is a valid design specification field.

The Transmission Checksum Field

<xmit checksum> ::= <hex digit>:4

The transmission checksum is the last value sent in a JEDEC transmission. The full JEDEC format requires the transmission checksum. The checksum is a 16-bit value, sent as a 4-digit hex number, and is the sum of all the ASCII characters transmitted between (and including) the STX and ETX. The parity bit is excluded in the calculation of the transmission checksum.

Some computer systems do not allow you to control what characters are sent, especially at the end of a line. You should set up the equipment so that it will accept a dummy value of 0000 as a valid checksum. This zero checksum is a way of disabling the transmission checksum while still keeping within the JEDEC format rules.
