

**NAME**

srec\_ti\_tagged\_16 – Texas Instruments Tagged (SDSMAC 320) file format

**DESCRIPTION**

This format is also known as the *TI-Tagged* or *Texas Instruments SDSMAC (320)* format.

This format allows binary files to be uploaded and downloaded between two computer systems, typically between a computer system (such as a PC, Macintosh, or workstation) and an emulator or evaluation board for 16-bit microcontrollers and microprocessors.

**The Lines**

Unlike many other object formats, the lines themselves are not especially significant. The format consists of a number of *tagged* fields, and lines are composed of a series of these fields.

Tag	Description
*	Data byte.
:	End of file.
0	File header (optional).
7	Checksum.
8	Dummy checksum (ignored).
9	Word Address.
B	Data word.
F	End of data record.
K	Program identifier (optional).

**Data Byte**

B	<i>n</i>	<i>n</i>
---	----------	----------

One byte of data. The *nn* is 8-bit big-endian hexadecimal.

**End of File**

:	CRLF
---	------

The end of data is indicated by this tag. The end of line sequence (LF on Unix systems, CRLF on PCs) follows this tag.

**File Header**

0	<i>length</i>	<i>filename</i>
---	---------------	-----------------

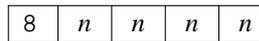
The optional start-of-file record begins with a tag character ('0') and a 12-character file header. The first four characters are the count (in hex) of the 16-bit data word values (B) which follow, not including data byte values (\*). The remaining file header characters are the name of the file and may be any ASCII characters, blank padded.

**Checksum**

7	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>
---	----------	----------	----------	----------

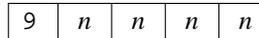
The checksum is the 2s complement sum of the 8-bit ASCII values of characters, beginning with the first tag character and ending with the checksum tag character (7). The *nnnn* is 16-bit big-endian hexadecimal.

**Dummy Checksum**



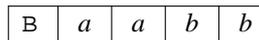
The checksum is the 2s complement sum of the 8-bit ASCII values of characters, beginning with the first tag character and ending with the checksum tag character (8). The *nnnn* is 16-bit big-endian hexadecimal.

**Address**



Addresses may be given for any data byte, but none is mandatory. The file begins at 0000 if no address is given before the first data field. The *nnnn* is 16-bit big-endian hexadecimal.

**Data Word**



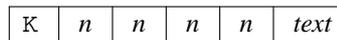
Two bytes of data. The *aa* and *bb* are each 8-bit big-endian hexadecimal.

**End of Record**



The end of line sequence (LF on Unix systems, CRLF on PCs) is escaped using this tag. The checksum is reset to zero at this point.

**Program Identifier**



The program identifier can contain a brief description of the program, or can be empty (*i.e.* the text portion is optional). The *nnnn* length (hex) of the field includes the 'K', the length and the text; it is at least 5.

**Size Multiplier**

In general, binary data will expand in sized by approximately 2.9 times when represented with this format.

**EXAMPLE**

Here is an example TI-Tagged file. It contains the data "Hello, World" to be loaded at address 0x0100.

```
K000590080B4865B6C6CB6F2CB2057B6F72B6C64*0A7F641F
:
```

Here is another example from the reference below

```
00028          7FDCFF
90000BFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFF7F400F
90008BFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFF7F3F8F
90010BFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFF7F3FFF
90018BFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFF7F3F7F
90020BFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFFBFFFFFF7F3FEF
:
```

**SEE ALSO**

<http://www.dataio.com/pdf/Manuals/Unifamily/981-0014-016.pdf> (page 6-7)

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