

ABSTRACT

These guidelines are for all authors who prepare technical documentation that is distributed to TI customers. The guidelines are not intended to provide an all-encompassing writing handbook; instead, the following are addressed:

- Situations that are unique to TI, to TI subject matter, and to the types of documents published by the Technical Documentation (TD) group
 - Rules that are covered in reference documents but are often misunderstood or questioned
 - Situations that have several acceptable alternatives, but in which one method must be adopted
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1 Additional TI References

The following are additional style and reference documents published and maintained by the Technical Documentation group. Refer to these documents for writing and illustration guidelines. Rules regarding typography or page layout have been superseded by the schemas and style sheets associated with the content management system.

The Technical Documentation group provides links to TI's documentation standards and other pertinent information on our [Standards & Guidelines](#) page such as:

- Writing and Editing Standards, STDZ010
- TI Embedded Processors (EP) Data Sheet Style Guide, STDZ113
- Data Sheet Content Mode
- TI Silicon Errata Guidelines, STDZ117
- Product Data Sheet Release and Change Procedure

2 Additional External References

The following resources provide guidelines, in addition to the internal specifications, that apply to TI technical documentation. If there is a conflict between the following resources and these *Writing and Editing Standards*, the *Writing and Editing Standards* take precedence.

- *The Gregg Reference Manual*
- *The Chicago Manual of Style*
- *Webster's New World Dictionary*
- *The New IEEE Standard Dictionary of Electrical and Electronics Terms* (Consult this reference for definitions rather than for usage.)
- *The Elements of Style* by Strunk and White

Simplified Technical English (STE) (Specification ASD-STE100) is a recommended writing technique and does not conflict with TI writing guidelines. For any questions about style or standards, see the TI guidelines listed in [Section 1](#).

3 Global Authoring (Writing for Translation)

The topics described in the following sections have been identified as problematic during the document translation process.

3.1 Active Voice

Use active voice instead of passive voice. For details and examples, see [Section 30](#).

3.2 Long Noun Strings

Do not use long noun strings, also known as noun clusters. A long string of nouns can confuse readers and translators. For additional information, see [Section 17](#).

As a solution, separate the adjectives and nouns into smaller groups.
For examples:

Before: Find the *glare screen bracket peg adjuster screw*.

After: Find the *screw* that adjusts the *bracket peg* for the *glare screen*.

Another way to revise a noun string is to change one noun to a verb.
For example:

Unclear: This procedure describes the *MPU register configuration process*.

Clear: This procedure describes the *process to configure MPU registers*.

3.3 Latin Abbreviations

Do not use Latin abbreviations. Spell out the English equivalent or change the sentence to avoid the need for the abbreviation. Use the guidance in [Table 3-1](#) to replace Latin abbreviations.

Table 3-1. Replace Latin Abbreviations

Latin Abbreviations	Instructions
e.g.	Spell <i>for example</i> .
ergo	Spell <i>therefore</i> .
et al	Use <i>and others</i> when referring to people. Use <i>and other things</i> or <i>among other things</i> when referring to items or objects.
etc.	Spell <i>and so forth</i> or be more specific about the items that are included in the list.
i.e.	Spell <i>that is</i> .
lb	Commonly accepted for pound weight measurement only in the U.S. Spell <i>pound</i> .
viz.	Spell <i>namely, specifically, or in other words</i> .
vs. or v	When used to indicate versus, spell <i>versus</i> Exception: in captions of typical characteristics and application curves, <i>vs</i> is acceptable.
inter al.	Spell <i>among others</i> or <i>among other things</i> .

3.4 Inappropriate Punctuation

Do not use terms, symbols, characters, or abbreviations that, although understood by the engineer, might easily confuse and mislead the translator or anyone in the global audience.

Note

Any rule or suggested change that would invalidate code examples or any other content that has its own syntax and usage rules does not apply. This includes but is not limited to any discussion of replacing slashes and ampersands.

- If using a slash may imply multiple meanings, replace the slash with the specific term, when possible. The slash could indicate *or*, *and*, or an *over bar* (active low), which may pose problems for translators, particularly non-native speakers of English, so replace the slash as appropriate.

Incorrect: IEEE 802.3 project/amendment

Correct: IEEE 802.3 project or amendment

- [Table 3-2](#) lists rules and examples of inappropriate punctuation. For more information, see [Section 4](#).

Table 3-2. How to Correct Inappropriate Punctuation

Inappropriate Punctuation	Comments, Notes, and Additional Information
/	Do not use the <i>and/or</i> construction. Use either <i>and</i> or <i>or</i> as appropriate in the sentence to indicate the specific meaning.
	Incorrect: In applications with high power dissipation <i>and/or</i> poor package thermal resistance, the maximum ambient temperature must be derated. Correct: In applications with high power dissipation <i>or</i> poor package thermal resistance, the maximum ambient temperature must be derated.
	Incorrect: The converter turns the N-channel MOS switch on, which allows the inductor current to ramp while the output capacitor supplies power to the white LEDs <i>and/or</i> to the OLED panel. Correct: The converter turns the N-channel MOS switch on, which allows the inductor current to ramp while the output capacitor supplies power to the white LEDs <i>and</i> to the OLED panel.
	Do not use the slash to indicate <i>and</i> or <i>or</i> . Use either <i>and</i> or <i>or</i> as appropriate in the sentence to indicate the specific meaning.
	Incorrect: Maximum <i>receive/transmit</i> values are over process and temperature. Correct: Maximum receive <i>and</i> transmit values are over process and temperature.
	Incorrect: This receiver framing engine performs the <i>cyclic redundancy check (CRC)/parity check</i> and removes the Start of Frame (SOF) and End of Frame (EOF) settings. Correct: This receiver framing engine performs the cyclic redundancy check (CRC) <i>or</i> parity check and removes the start of frame (SOF) and end of frame (EOF) settings.
	MPEG-1/2/4: This term is <i>a convention</i> rather than <i>a defined term</i> .
	Incorrect: MPEG-1/2/4 Correct: MPEG-1, MPEG-2, and MPEG-4.
	Bluetooth BR/EDR: This term is a Bluetooth® definition signifying the use of both Bluetooth BR <i>and</i> EDR modes.
(s)	Incorrect: Bluetooth® <i>BR/EDR</i> Correct: Bluetooth® BR <i>and</i> EDR modes
	Do not form plurals by adding (s). Rewrite the sentence to use the plural form. If it is important to indicate both singular and plural, use: <i>one or more</i> . For more information on forming plurals, see Section 5.3 .
	Incorrect: Set the necessary <i>bit(s)</i> to 1. Correct: Set the necessary <i>bits</i> to 1.
&	Incorrect: The LPSC communicates with the PLL controller to enable and disable the <i>clock(s)</i> at the source. Correct: The LPSC communicates with the PLL controller to enable and disable <i>one or more clocks</i> at the source.
	Do not use an ampersand to mean <i>and</i> .
^	Do not use the circumflex character, especially next to numbers. This mark is mapped in Japan and Korea to their respective monetary symbol.
~	Do not use the tilde. In Japanese, this mark maps to an overline symbol. Translators may use the tilde if it is in their standard vocabulary. If the tilde is used in body text to indicate an approximation, use the word <i>approximately</i> . If space to spell the word is not available, an alternative is the approximately equal symbol, \approx .

Table 3-2. How to Correct Inappropriate Punctuation (continued)

Inappropriate Punctuation	Comments, Notes, and Additional Information
#	Do not use the octothorpe to denote number. Instead, spell <i>number</i> in running text, use <i>NO.</i> as a table header column, or delete the octothorpe (for example, change <i>CPU#1</i> to <i>CPU1</i>).
\$	Do not use the dollar sign to denote U.S. dollars or currency (unless that is the only currency accepted).
@	Do not use the '@' symbol in the body of a document or in tables. Instead, spell the word <i>at</i> . Reserve the use of the '@' symbol for email addresses. ⁽¹⁾

(1) Because the '@' symbol can be used legitimately in code, do not use the *Replace All* function to eliminate them in the text.

3.5 Ambiguous Pronouns

Examples of ambiguous pronouns are: *these*, *it*, *those*, *this*, and *they*.

An ambiguous pronoun (without an accompanying noun) can confuse the reader when it can possibly reference more than one item in a sentence. Do not start a sentence with an ambiguous pronouns.

- Do not start a sentence with an ambiguous pronoun alone. Instead, insert the appropriate noun to specify the item under discussion.

Note

The use of a pronoun as an adjective is valid in the following examples because the noun is included:

- This* value....
- These* bits....
- Those* registers....

- TI documents contain numerous occurrences of the ambiguous introductory pronouns *It*, *This*, *They*, *Those*, and *These*.

Search documents for occurrences of the following and determine the appropriate wording.

- (space)It(space)
- (space)This(space)
- (space)They(space)
- (space)These(space)
- (space)Those(space)

Choose the search option "match whole words only" in XMetaL and Adobe Acrobat.

- Do not rely on pronouns in place of specific terminology.

Example with an ambiguous pronoun:

If there is a valid value for the completed field, *it* does not change.

In this example, the pronoun *it* is unclear. Does *it* refer to the valid value or to the completed field?

For better clarity, rewrite the sentence as follows:

Corrected example:

A valid value for the completed field does not change.

Table 3-3 lists additional examples of sentences with ambiguous pronouns in the left column that are rewritten with more concise language in the right column.

Table 3-3. Rewrite to Clarify Ambiguity

Ambiguous Subject	Specific Subject
The frequency discriminator and the 4-stage shift register select the appropriate number of inverter stages in the VCO, depending on which configuration best fits both the operating conditions and the chosen VCO output frequency. <i>This</i> is called the coarse-frequency adjustment.	The frequency discriminator and the 4-stage shift register select the appropriate number of inverter stages in the VCO, depending on which configuration best fits both the operating conditions and the chosen VCO output frequency. This <i>selection process</i> is called the coarse-frequency adjustment.

Table 3-3. Rewrite to Clarify Ambiguity (continued)

Ambiguous Subject	Specific Subject
The ADS1672EVM-PDK plug-in for ADCPro provides complete control over all settings of the ADS1672 device. <i>It</i> consists of a tabbed interface, with all of the functions available on the main tab.	The ADS1672EVM-PDK plug-in for ADCPro provides complete control over all settings of the ADS1672 device. <i>The plug-in</i> consists of a tabbed interface, with all of the functions available on the main tab.
Internal sequences start when the device addresses a command strobe register. <i>Those</i> allow the device to enable receive and transmit mode, enter sleep mode, or disable the crystal oscillator.	Internal sequences start when the device addresses a command strobe register. Those <i>commands</i> allow the device to enable receive and transmit mode, enter sleep mode, or disable the crystal oscillator.
To simplify the power supply requirements for the system, the TPA3251 device includes integrated low dropout (LDO) linear regulators to create these supplies. <i>These</i> are internally connected to the VDD supply and their outputs are presented on the AVDD and DVDD pins.	To simplify the power supply requirements for the system, the TPA3251 device includes integrated low dropout (LDO) linear regulators to create these supplies. These <i>linear regulators</i> connect internally to the VDD supply and the outputs presented on the AVDD and DVDD pins.

3.6 Human Traits and Inanimate Objects (Anthropomorphism)

Do not assign human traits to inanimate objects. Reword the sentence if the following words are used as human traits in conjunction with inanimate objects.

- decide
- determine (for example, *The module determines....*)
- expect or expects
- feel
- hear
- know
- like (when used to mean *to enjoy* or *prefer*; differentiated from *is similar to*)
- look
- see
- talk
- think
- touch
- want or wants

Table 3-4 lists examples of sentences rewritten to exclude human traits from the inanimate objects.

Table 3-4. Rewrite to Remove Anthropomorphism

Incorrect Use of Human Traits	Correct Examples
The supervisory program <i>watches</i> for bus conditions that it does not <i>like</i> and then reads the status bits to help <i>figure out</i> what to do about it when it <i>sees</i> one.	The supervisory program monitors the bus for error conditions and then reads the status bits to select the appropriate action when an error is detected.
The advertiser responds with a scan response. This is the process of device discovery; the scanning device is now <i>aware of</i> the advertising device and <i>knows</i> that it can initiate a connection with it.	The advertiser responds with a scan response. This is the process of device discovery; the scanning device now detects the advertising device and can initiate a connection with it.
The public ROM code <i>decides</i> to use the feature based on the value read on a warm reset.	The public ROM code uses the feature based on the value read on a warm reset.
When hardware reaches the end of the current frame and <i>sees</i> that the bit field has been set by software, the new configuration is now the configuration used by the hardware.	When hardware reaches the end of the current frame and the software sets the bit field, the hardware uses the new configuration.
The SoP setting <i>decides</i> the device functional mode.	The SoP setting controls the device functional mode.
The MCU <i>needs to know</i> when a packet has been received or transmitted.	The MCU must detect when a packet is received or transmitted.
The device <i>looks</i> for a UART break in order to initiate flash loading process.	The device initiates the flash loading process when a UART break is detected.
Nonbeacon mode is the asynchronous network mode of operation where the devices <i>talk</i> by using the CSMA/CA mechanism.	Nonbeacon mode is the asynchronous network mode of operation where the devices communicate by using the CSMA/CA mechanism.
The third scenario is where the end device <i>wants</i> to disassociate itself from the network.	The third scenario is where the end device must disassociate itself from the network.

Note

When describing the function a central processing unit (CPU), using the verbs *decide* or *determine* may be accurate. Consider the following examples:

- The CPU uses a decision tree to *determine* the outcome of a function.
 - The arithmetic/logic unit of the CPU compares two values to *determine* if they are equal.
 - High-level processing *determines* the type of object—other vehicles, people, animals, signs or lights—in addition to the speed at which the object is moving. A microcontroller (MCU) *decides* whether to proceed, stop, or wait until the pedestrian moves, the light changes, or a nearby car passes).
 - Diagnostics are the ability of a system to identify an issue and communicate it back to the central host to *decide* which steps to take.
-

3.7 Contractions

Do not use contractions.

Note

The terminology *don't care bit* and the contraction *o'clock* are acceptable. In the case of *don't care bit*, limit the use of *don't care* to discussions about signals and bit values.

4 Guidelines for Slashes

The Technical Documentation group's objective is to create documents that are highly readable and clearly understood by translators and linguists. As such, replacing a slash with the words *and* or *or* is an intentional exercise of common sense with clarity as the end goal. The purpose is not to eliminate abbreviated forms of words.

A directive such as *replace all slashes* is not appropriate. Because global search-and-replace does not apply, this issue must be addressed on a case-by-case basis.

Note

Any rule or suggested change that would invalidate code examples or any other content that has its own syntax and usage rules does not apply.

Use the following guidelines to replace a slash in text:

- Eliminate slashes that are used as shorthand with paired words (usually opposites or opposite actions) to indicate either *and* or *or*. Instead of the slash, use the appropriate conjunction.
- Following are examples of paired words to separate by a conjunction:

Table 4-1. Change the Slash in These Terms to *And* or *Or*

assert/deassert	master/slave ⁽³⁾	rising/falling
connect/disconnect	minimum/maximum	rise/fall
counter/capture	odd/even	set/cleared
enable/disable	ON/OFF ⁽¹⁾	synchronous/asynchronous
encoder/decoder	page/sector	sync/async ⁽²⁾
ESR/ESL	phase/frequency	to/from
half-bridge/full-bridge	plug/unplug	transmit/receive
high/low	powerup/powerdown	up/down
jitter/phase	pullup/pulldown	voltage/current
LCD/digital	push/pull	—
left/right	read/write	—

(1) This form is acceptable if it reflects nomenclature or labels on a PCB.

(2) To avoid confusion, spell the adjective *asynchronous* instead of using the abbreviation *async* whenever possible.

(3) Read [Our commitment to using inclusive technical terminology](#).

Note

Use of the slash in *AC/DC* and *DC/DC* is consistent with TI branding guidelines.

Note

Use *N/A* as the abbreviation for *not applicable* or *not available*.

- Slashes in nomenclature are acceptable. Do not remove them. For example, if a module or specification name contains slashes, removing or replacing them incorrectly identifies the item.

Note

Do not remove slashes in code.

- If a device name does not contain a slash, do not add a slash to indicate a combination. For example, the combined module form could be divided as follows for clarity:
Replace **TMP708/709** with **TMP708 and TMP709**.

- Do not use slashes to combine device numbers that are separate entities. Instead, write out the entire part number and separate with commas, as in the following examples:
 - Replace **LM5100A/B/C** with **LM5100A, LM5100B, LM5100C**.
 - Replace **LM5100/1/2/3/4** with **LM5100, LM5101, LM5102, LM5103, and LM5104**.
- In these examples, the piggybacked forms (TMP708/709, LM5100A/B/C, LM5100/1/2/3/4) are easier to understand when written as two or more separate numbers. Again, use common sense to create clarity for the reader and the translator.
- The slash is acceptable in the format *R/W* in register tables because of the numerous possibilities of complex types of bit fields that are supported by the IP-XACT automation.

See http://tis.dal.design.ti.com/demo/Register_Bit_Field_Types.xls for a more comprehensive list.

Several acceptable examples follow:

R/W = Read/Write

R/W0S = Read/Write 0 to Set

R/W1S = Read/Write 1 to Set

R/W1T = Read/Write 1 to Toggle

R/W1CP = Read/Write 1 to Clear (Privilege Only)

RSP/W1T = Read-Set (Privilege Only)/Write 1 to Toggle

- The slash is acceptable as a divisor in an equation. When the slash (or the math symbol $/$) is used as a divisor, include a space on each side. For example:

Gain, $k = 1 + ((D2 - D1) / (X2 - X1))$

- Do not use *w/* as an abbreviation for *with*.
- Replace +/- with the mathematical symbol \pm .

The \pm symbol is an industry standard indicating a range on either side of a value; for example, 10 ± 2 means the range from $10 - 2$ to $10 + 2$.

- In figures, tables, and graphs, use *and* (or *or*) instead of a slash as space permits.

For example:

Change from *rise/fall times* to *rise and fall times*

Change from t_r/t_f to t_r and t_f

- If a slash is part of a unit of measure, leave it as is.

For example, use N/m^2 for newton per square meter. Notice, however, that in running text such units, the word *per* replaces the slash. Do not write *newton/square meter*.

slashslash divisor

counter-example to
slashslash divisor

5 Abbreviations, Acronyms, and Initialisms

Abbreviations are shortened forms of words, terms, phrases, or units of measurement. They are used by convention, for convenience, or to save space. [Table 5-1](#) lists examples of abbreviations.

Table 5-1. Abbreviations

Full Term	Abbreviation
acknowledge	ACK
millimeter	mm
cosecant	csc
cosine	cos
megahertz	MHz
clock	CLK
ground	GND
physical layer	PHY
multiplexer	MUX

Acronyms are **pronounceable** terms formed by the initial letters of a series of words or by parts of a series of words. [Table 5-2](#) lists examples of acronyms.

Table 5-2. Acronyms

Full Term	Acronym
dual in-line package	DIP
first-in, first-out	FIFO
Joint Electron Devices Engineering Council	JEDEC
Institute of Electrical and Electronics Engineers (pronounced "I triple E")	IEEE
package on package	POP
random access memory	RAM
micro-electro-mechanical system	MEMS
metal-oxide semiconductor field-effect transistor	MOSFET
local area network	LAN
universal asynchronous receiver/transmitter	UART
Multichannel Audio Serial Port	McASP

Initialisms are abbreviations derived from the first letters in a group of words and are pronounced as separate letters. [Table 5-3](#) lists examples of initialisms.

Table 5-3. Initialisms

Full Term	Initialism
central processing unit	CPU
data definition language	DDL
direct memory access	DMA
transistor-transistor logic	TTL
general-purpose input/output	GPIO
human machine interface	HMI
liquid crystal display	LCD
real-time clock	RTC
revolutions per minute	rpm ⁽¹⁾
revolutions per second	rps ⁽¹⁾

- (1) The initialisms *rpm* and *rps* are exceptions to the rule that initialisms are usually written in all capital letters.

5.1 Defining and Using Abbreviations, Acronyms, and Initialisms

Use the following guidelines when defining and using abbreviations, acronyms, and initialisms:

- Do not define common abbreviations, acronyms, or initialisms that appear in *The American Heritage Dictionary of the English Language*; for example, *modem* (modulator plus demodulator) or *laser* (light amplification by stimulated emission of radiation).
- Define or coin an uncommon abbreviation, acronym, or initialism, or one that is new to the document, the first time it appears in the text. Redefine or recoin the term only when necessary for clarity.
- For large documents like technical reference manuals, recoin uncommon abbreviations, acronyms, or initialisms in each chapter. Because the chapters in large documents are very often used independently of each other, recoining is required for clarity.
- If a term is uncommon and is not used often in a document, use the full expression rather than the abbreviated form.
- Use an abbreviation where space is limited, such as in tables and figures, or when the abbreviated version is more common than the full term.
- In the definition of an abbreviation, acronym, or initialism, present the common term first followed by the alternative form in parentheses. When in doubt, use the spelled term first with the abbreviation, acronym, or initialism in parentheses.

Example of defining abbreviations:

The program counter (PC) and the processor status register (PSR) are directly accessible to the programmer.

- Do not repeat part of the name that is included in the abbreviation, acronym, or initialism. [Table 5-4](#) lists examples that show how to rewrite to eliminate a repeated word in a sentence with an abbreviation.

Table 5-4. Do Not Repeat a Word in the Abbreviation

Incorrect—Part of the Abbreviated Term is Repeated	Correct Wording
...the LCD <i>display</i> shows....	...the LCD shows....
...the FET <i>transistor</i> minimizes the....	...the FET minimizes the....
...prevents data from corrupting RAM <i>memory</i> during....	...prevents data from corrupting RAM during....
...data sent or received over the SPI <i>interface</i> must be....	...data sent or received over the SPI must be....

- If a document contains a glossary, define every abbreviation, acronym, or initialism in the document that is not in *The American Heritage Dictionary of the English Language*. Use a cross-reference in the entry for the abbreviated term and place the definition in the entry for the spelled term.

5.2 Capitalization of Abbreviations, Acronyms, and Initialisms

Use the following capitalization guidelines for abbreviations, acronyms, and initialisms:

- Use of *TI* as an initialism for Texas Instruments in technical documents is acceptable.
- Initialisms are usually written with uppercase letters. [Table 5-5](#) lists examples of sentences rewritten to use the correct capitalization.

Table 5-5. Capitalization of Abbreviations, Acronyms, and Initialisms

Incorrect Capitalization	Correct Capitalization
The <i>rtc</i> registers are placed in the....	The <i>RTC</i> registers are placed in the....
Programmers use the common gateway interface (<i>cgi</i>) language to create interactive documents on the Web.	Programmers use the common gateway interface (<i>CGI</i>) language to create interactive documents on the Web.
Data value is only sampled for accesses that do not fault (<i>mpu</i> or bus fault).	Data value is only sampled for accesses that do not fault (<i>MPU</i> or bus fault).
The device can produce <i>dma</i> trigger events through the event handler.	The device can produce <i>DMA</i> trigger events through the event handler.

Table 5-5. Capitalization of Abbreviations, Acronyms, and Initialisms (continued)

Incorrect Capitalization	Correct Capitalization
...500V <i>hbm</i> allows safe manufacturing with a standard <i>esd</i> control process.	...500V <i>HBM</i> allows safe manufacturing with a standard <i>ESD</i> control process.
The motor can reach 310 <i>RPM</i> at a 90% duty cycle.	The motor can reach 310 <i>rpm</i> at a 90% duty cycle. ⁽¹⁾

(1) The initialism *rpm* is an exception to the rule that initialisms are usually written in all capital letters.

- If the full term is a proper noun or trade name, write it with initial capitals followed by its abbreviated form in parentheses. Capitalize trademarks as established by their holders.

Example of a trade name initialism:

Many personal computers run the Microsoft® Disk Operating System (MS-DOS™), while others run the IBM® Disk Operating System (PC-DOS™).

5.3 Create Plurals and Possessives With Abbreviations, Acronyms, and Initialisms

Use the following guidelines for creating plurals and possessives with abbreviations, acronyms, and initialisms:

- Make an abbreviation plural by adding a lowercase *s*. Do not use an apostrophe before the final *s* in a plural abbreviation. [Table 5-6](#) lists sentences that are rewritten to change the incorrect possessive form to the correct plural form.

Table 5-6. Rewrite to Change From Possessive to Plural Forms

Incorrect Use of the Apostrophe	Correct Plural Term
Any additional <i>read's</i> that are part of the same transaction cause the EEPROM address to be incremented.	Any additional <i>reads</i> that are part of the same transaction cause the EEPROM address to be incremented.
The <i>DRAM's</i> are dependent on the applied voltage....	The <i>DRAMs</i> are dependent on the applied voltage....
The two main characteristics that differentiate the types of <i>LAN's</i> are <i>topology</i> and <i>protocol's</i> .	The two main characteristics that differentiate the types of <i>LANs</i> are <i>topology</i> and <i>protocols</i> .
Connect the <i>LED's</i> to the....	Connect the <i>LEDs</i> to the....

- Do not use (*s*) to indicate the option of singular or plural (see [Section 3.4](#)). [Table 5-7](#) lists sentences that are rewritten to remove the (*s*) construction and use the correct plural form.

Table 5-7. Do Not Use the (*s*) Construction

Incorrect (<i>s</i>) Form	Correct Plural Form
...detune the particular <i>FRO(s)</i> that had the alarm.	...detune the particular <i>FRO</i> or <i>FROs</i> that had the alarm.
....the WCLK period in which the first input <i>word(s)</i> are sampled and stored to memory.the WCLK period in which the first input <i>words</i> are sampled and stored to memory.
...to power off the <i>domain(s)</i> controlling the I/Os....	...to power off the <i>domain</i> (or <i>domains</i>) controlling the I/Os....
The <i>module(s)</i> controlled by this secondary TAP remain in RESET state.	The <i>module</i> (or <i>modules</i>) controlled by this secondary TAP remain in RESET state.

- Do not use abbreviations or inanimate objects in the possessive form.

Note

An inanimate object cannot own or possess anything; therefore, do not use an apostrophe 's with nouns that are not people.

Each example in [Table 5-8](#) shows the incorrect possessive form of the inanimate object italicized in the left column. In the right column, the sentence is rewritten to remove the possessive form of the inanimate object.

When rewriting the sentence, modify the sentence structure and add or delete words as necessary **without changing the meaning of the original sentence**.

Note

Gain approval from the engineer when making these types of changes to make sure the original sentence meaning is conveyed correctly and in a concise manner.

Table 5-8. Rewrite to Remove the Incorrect Possessive Form of Inanimate Objects

Incorrect Use of Possessive Form	Rewritten to Remove Possessive Form
When the RX <i>node's</i> local clock operates at +100ppm from its nominal frequency and the TX <i>node's</i> local clock operates at –100ppm from its nominal frequency, FIFO underflow errors occur without any clock compensation.	When the <i>node</i> of the RX local clock operates at +100ppm from its nominal frequency and the <i>node</i> of the TX local clock operates at –100ppm from its nominal frequency, FIFO underflow errors occur without any clock compensation.
...generates the proper switching control patterns to control the <i>motor's</i> motion, which is based on feedback information from...	...generates the proper switching control patterns to control the motion of the <i>motor</i> , which is based on feedback information from...
Powering VCC from an auxiliary winding improves efficiency while reducing the <i>controller's</i> power dissipation.	Powering VCC from an auxiliary winding improves efficiency while reducing the power dissipation of the <i>controller</i> .
During the <i>clock signal's</i> low time, the voltage at the RT pin is clamped....	During the low time of the <i>clock signal</i> , the voltage at the RT pin is clamped....
...voltage applied to the <i>power transformer's</i> primary circuit...	...voltage applied to the primary circuit of the <i>power transformer</i> ...
The combination of the <i>op amp's</i> output impedance and the capacitive load induces phase lag.	The combination of the output impedance of the <i>op amp</i> and the capacitive load induces phase lag.
To maintain the <i>threshold's</i> accuracy, a resistor tolerance of 1% or better is recommended.	To maintain the accuracy of the <i>threshold</i> , a resistor tolerance of 1% or better is recommended.

Note

The possessive form *TI's* is acceptable in the examples that follow:

- The input CMOS logic and output power stage are separated by TI's silicon-dioxide (SiO₂) isolation barrier.
- TI's customers are responsible for determining suitability of components for their purposes.

5.4 Use Articles to Precede Abbreviations, Acronyms, and Initialisms

Using articles in technical documentation makes the sentences more concise and understandable for a global audience. Articles help the reader identify which words are nouns. Omitting articles (known as telegraphic writing) can cause confusion.

The definite article *the* is used to refer to a person or thing that is identified or specified.

The indefinite articles *a* and *an* are used to refer to a person or thing that is not identified or specified.

- Use *a* if the abbreviated form starts with a consonant sound.
- Use *an* if the abbreviated form starts with a vowel sound.

[Table 5-9](#) lists examples of articles preceding abbreviations, acronyms, and initialisms.

Table 5-9. Articles that Precede Abbreviations, Acronyms, and Initialisms

Type of Article	Article and the Abbreviation, Acronym, or Initialism	Example Sentences
Indefinite (a, an)	a CLK	A CLK signal is used to regulate the peripheral timings.
	a PBX	Extending a PBX system to encompass these functions is expensive.
	an EEPROM	An EEPROM chip must be erased and reprogrammed.
	an EVM	TI includes an EVM with each device.
	an LED	An LED short condition occurs if the voltage at the LED pin goes below 500mV.
Definite (the)	the IEEE-SA	Membership in the IEEE-SA connects a global community of engineering professionals.
	the LPSC, the PLL	The LPSC communicates with the PLL controller.
	the RTC	The wake-up time is a function of the RTC counter peripheral and software scaling factors.

Note

When a specific, *labeled* abbreviation, acronym, or initialism (for example: CPU1, I2C2, CLK2, WDT3) has been identified, and that term is being reused, there is no need to precede that term with an article. See the following example.

The CPU1 subsystem acts as a master on this device, and by default (upon reset). CPU1 owns all the configuration and control. Through software running on CPU1, peripherals and I/Os can be configured for access by the CPU2 subsystem. CPU1 and CPU2 communicate during the boot process through a set of inter-processor communication (IPC) registers.

5.5 Beginning With Abbreviations, Acronyms, and Initialisms

Beginning a title or list item with an abbreviated form that begins with a lowercase letter is appropriate if that is the generally accepted form. [Table 5-10](#) lists examples from TI documents where it is acceptable to begin with a lowercase letter.

Note

Avoid starting a sentence with a lowercase abbreviation, acronym, or initialism; slightly reword the sentence or use the spelled term.

Example:

Change from *eFuse Block Diagram* to *Block Diagram of the eFuse* or *The eFuse Block Diagram*.

Table 5-10. Lowercase Terms That Begin Titles and List Items

Accepted Lowercase Abbreviations, Acronyms, and Initialisms	Examples	
eFuse	Titles in TI documents	Figure 3. eFuse Block Diagram
eHRPWM		Figure 18-2. eHRPWM Submodules Showing Critical Internal Signal Interconnections
ePWM		Table 14-1. ePWM Module Control and Status Registers Grouped by Submodule
eTrim™		Table 1. eTrim™ Bit Codes and Effect
iceLynx-Micro™		7.1.9 iceLynx-Micro™ IEEE 1394a-2000 Consumer Electronics Solution
iHVM™		Figure 31. iHVM™ Loop Structure

Table 5-10. Lowercase Terms That Begin Titles and List Items (continued)

Accepted Lowercase Abbreviations, Acronyms, and Initialisms	Examples	
mDDR	Features list items	<ul style="list-style-type: none"> External Memory Interfaces (EMIF) <ul style="list-style-type: none"> mDDR(LPDDR), DDR2, DDR3, DDR3L Controller: <ul style="list-style-type: none"> mDDR: 200MHz Clock (400MHz Data Rate)
multiSPI™		<ul style="list-style-type: none"> multiSPI™ Digital Interface

5.6 Abbreviations, Acronyms, and Initialisms Within Headings, Titles, and Captions

An abbreviation, acronym, or initialism can appear in a heading, title, or caption before the term is used in the text.

Note

Use the complete device name in headings and titles (use *TMS320C54x* instead of the abbreviation *320C54x* or *C54x*). For further guidelines, see [Section 5.7](#).

5.7 Abbreviating TI Product Names

Use the following guidelines for abbreviating TI product names:

- Device names can be abbreviated by removing a platform or family prefix (for examples, see [Table 5-11](#)).

Note

Do not use a slash to separate generic part numbers (GPNs) for devices. Instead, write the full GPNs and separate them with a conjunction or commas as appropriate. For further guidance, see [Section 4](#).

Table 5-11. Remove a Platform or Family Prefix to Abbreviate Product Names

Device Name	Abbreviation
TMS320C32	320C32 or C32
TMS370C16	370C16 or C16
SN54LVT16374 and SN74LVT16374	LVT16374
SN54ALS138A and SN74ALS138A	ALS138A
TMS626802	626802
SN54AHCT125 and SN74AHCT125	ACHT125

- Devices can be grouped into families or categories by using lowercase x in place of the differentiating characters (digits or letters) in device names (for examples, see [Table 5-12](#)).

Table 5-12. Abbreviate Product Names With Lowercase x

Device Name	Abbreviation
TMS320C30, TMS320C31, and TMS320C32	TMS320C3x
TMS416169, TMS418169, TMS426169, and TMS428169	TMS4xx169
CC1352R, CC1352P, CC2642R, and CC2642P	CC13x2x and CC26x2x
TLC5926-Q1 and TLC5927-Q1	TLC592x-Q1
TPS7H1101-SP and TPS7H1201-HT	TPS7H1x01-xx
REG71050, REG71055, and REG710	REG710xx

Table 5-12. Abbreviate Product Names With Lowercase x (continued)

Device Name	Abbreviation
OPA836 and OPA2836	OPAx836

- Multiple types of devices can be combined by removing the prefix and using lowercase x in place of the differentiating characters (for examples, see [Table 5-13](#)).

Table 5-13. Remove a Prefix and Use Lowercase x to Abbreviate Product Names

Device Name	Abbreviation
TMS320C30, TMS320C31, and TMS320C32	C3x
TMS416169, TMS418169, TMS426169, and TMS428169	4xx169
MSP430FW429, MSP430FW428, and MSP430FW427	FW42x

- Abbreviate long product names or features according to the preference of the product group (for examples, see [Table 5-14](#)).

Table 5-14. Follow Guidance From the Product Line About Abbreviated Product Names

Product or Feature Name	Abbreviation
TMS320C5x Evaluation Module	C5x EVM
Software Development Board	SDB
TMS370C8 and TMS370C16 High-End Timer	C8 and C16 HET
host-port interface	HPI

6 Alphabetization

Use the guidelines that follow for alphabetization:

- Place symbol and numeric entries at the beginning of an alphabetized list with symbols followed by numeric entries. Generally, the order of symbols is not important, but make sure to list numeric entries in numerical order.
- Group related symbols together in the symbol portion of a list if mathematical symbols must be included in an alphabetical list.
- Alphabetize abbreviations and acronyms letter by letter. Parenthetical expressions do not determine the order.

Example of an alphabetized list:

& (ampersand)
 @ (at)
 % (percent)
 +
 –
 >
 <
 =
 ≠
 16 bit
 2 bytes
 24 bit
 ACE (asynchronous communications element)
 ANSI (American National Standards Institute)
 IER (interrupt enable register)
 IIR (interrupt identification register)
 Mb (megabit)

MB (megabyte)
Mbps (megabits per second)
MBps (megabytes per second)

7 Articles

7.1 Capitalizing Articles

Do not capitalize articles in titles unless the article is the first word in the title, or if the article follows a dash or a colon.

Examples:

- Non-ECC Mode (Code Access)—The L3_MAIN Address in the
- Clock Generation: The 48MHz Input Clock in the GPTM
- Pin Attributes of a DRA780x Device

7.2 Using Articles

Use the guidelines for articles that follow:

- Use articles in text and procedures to improve clarity of the sentence.

Examples of articles in text:

- *The* antenna connects near *the* temperature sensor below *the* top panel of *the* cabinet.
- Set *the* POWER switch to *the* OFF position.
- Use a definite article before a prompt, key, or other name used as an adjective.

Examples of definite articles used before prompt and key names used as adjectives:

- *The* CON> prompt indicates that....
- Press *the* CTRL key.
- Do not use an article when the prompt or name is a noun.

Examples of prompt and key names used as nouns:

CON> indicates that....

Press CTRL.

- Use *a* as the indefinite article before file extensions and COFF section names that are preceded by a period. Assume that the period at the beginning of in a filename is pronounced *dot*.

Example of the indefinite article with file extensions:

Verify that *a* .asm file and *a* .obj file are in the current directory. (Assume that .asm is pronounced *dot a ess em* and .obj is pronounced *dot oh bee jay*.)

- The use of indefinite articles *a* and *an* with words that begin with the letter *h* depends on the sound of the *h*.
 - Use the article *a* for words that begin with a hard *h* sound.

Examples:

- *a* historic event
- *a* hardwired control unit
- Use the article *an* when the *h* sound is silent.

Examples:

- *an* honorable person
- *an* heir to the family

8 Bias in Language

Use the guidelines for avoiding bias in TI's documents:

- Do not use language that labels a gender, race, ethnic group, or other stereotype.
- Do not use third-person singular pronouns to refer to indefinite pronouns such as everyone or someone. Use plural forms of nouns and pronouns.

Table 8-1 lists several examples of sentences rewritten to remove biased language.

Table 8-1. Rewrite to Remove Biased Language

Biased Language—Do Not Use	Unbiased Language
The <i>engineer</i> verifies the accuracy of <i>his</i> documentation.	<i>Engineers</i> verify the accuracy of <i>their</i> documentation.
The <i>manager</i> is responsible for <i>his or her</i> employees.	<i>Managers</i> are responsible for <i>their</i> employees.

8.1 Adopting Inclusive Terminology

This [article](#) on TI's internal portal, Infolink, discusses our commitment to using inclusive technical terminology. In addition, our Confluence site offers specific writing guidelines for [Adopting Inclusive Terminologies](#).

9 Boldface

See [Section 13](#) for further information.

Do not use boldface type in a table (usually seen in legacy *Electrical Characteristics* tables) for limits tested at a separate test condition.

[Example 9-1](#) shows a table with boldface limits and the older formatting. [Example 9-2](#) shows the reformatted table with an altered condition statement and the boldface limit temperatures moved into the TEST CONDITIONS column on a new (split) row with the (previously boldface) values.

Example 9-1. Incorrect Table With Boldface Type

ELECTRICAL CHARACTERISTICS						
Unless otherwise specified, all limits specified for $V_I = V_O + 0.5V$, $V_{(SHDN)} = V_I$, $C_{(IN)} = C_{(OUT)} = 2.2\mu F$, $C_{(CC)} = 33nF$, $T_J = 25^\circ C$. Boldface limits apply for the operating temperature extremes: $-40^\circ C$ to $+85^\circ C$.						
PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
V_I	Input Voltage	2.5		6.0	V	
ΔV_O	Output Voltage Tolerance	$100\mu A \leq I_O \leq 300mA$ $V_I = V_O + 0.5V$ SET = OUT for the Adjust Versions	-2	+2	% of V_O (NOM)	
V_O	Output Adjust Range	Adjust Version Only		6	V	
I_O	Maximum Output Current	Average DC Current Rating	300		mA	
I_L	Output Current Limit		330	770	mA	
I_{DD}	Supply Current	$I_O = 0mA$	90	270	μA	
		$I_O = 300mA$	225			
$I_{DD(SHDN)}$	Shutdown Supply Current	$V_O = 0V$, SHDN = GND	0.001	1	μA	

Example 9-2. Correctly Reformatted Table
6.5 Electrical Characteristics

Unless otherwise specified, all limits are specified for $V_I = V_O + 0.5V$, $V_{(SHDN)} = V_I$, $C_{(IN)} = C_{(OUT)} = 2.2\mu F$, $C_{(CC)} = 33nF$, $T_J = 25^\circ C$.

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
V_I Input voltage	$T_J = -40^\circ C$ to $85^\circ C$	2.5		6	V
ΔV_O Output voltage tolerance	$100\mu A \leq I_O \leq 300mA$ $V_I = V_O + 0.5V$ SET = OUT for the ADJ Versions	-2		2	% of V_O (NOM)
	$100\mu A \leq I_O \leq 300mA$ $V_I = V_O + 0.5V$ SET = OUT for the ADJ Versions $T_J = -40^\circ C$ to $85^\circ C$	-3		3	
V_O Output adjust range	ADJ version only; $T_J = -40^\circ C$ to $85^\circ C$	1.25		6	V
I_O Maximum output current	Average DC current rating; $T_J = -40^\circ C$ to $85^\circ C$	300			mA
I_L Output current limit			770		mA
	$T_J = -40^\circ C$ to $85^\circ C$	330			
I_{DD} Supply current	$I_O = 0mA$		90		μA
	$I_O = 0mA$; $T_J = -40^\circ C$ to $85^\circ C$			270	
	$I_O = 300mA$		225		
$I_{DD(SHDN)}$ Shutdown supply current	$V_O = 0V$, $\overline{SHDN} = GND$		0.001	1	μA

Remove the "Boldface limits...." statement from the table condition.

Split the rows to add the (previously boldface) content to the TEST CONDITIONS column, and add the (previously boldface) values to the MIN, TYP, and MAX columns.

10 Capitalization

For additional capitalization rules, see [Section 13](#) and *The Gregg Reference Manual*.

In parenthetical expressions, follow the same rules as the rest of the heading, sentence, or bullet.

Capitalization in a parenthetical expression of a sectionalized (numbered) heading or title:

- 3.6.9 Loading the Symbol Table Only (–s Option)
- 8.2.1 Typical Mixed Mode Display (for Mixed Mode Only)

Capitalization in a parenthetical expression of an unnumbered heading:

- Loading the symbol table only (–s option)
- Typical mixed mode display (for mixed mode only)

ToggleCase or CamelCase

Alternatively known as , *bicapitalization*, *InterCaps*, and *medial capitals*, *CamelCase* describes a compound word with capital letters to delimit the word parts. Some of TI's [Texas Instruments Trademarks](#), [Servicemarks](#), and [Approved Nouns](#) use this branding style. Always use only the particular design of lowercase and uppercase letters of such marks. Some common examples of TI trademarks follow:

- BoosterPack™
- eXpressDSP™
- LaunchPad™
- SimpleLink™
- SmartConfig™
- SmartRF™

For more information about trademarks, see [Section 28](#).

10.1 Common Discrepancies in Sourced Content

[Table 10-1](#) contains terms that are frequently sourced incorrectly. In TI technical documentation, use the forms listed in the right column.

Table 10-1. Common Discrepancies in Sourced Content

Incorrectly Sourced Forms	Correct Forms
kB or kb	KB or Kb ⁽¹⁾
KHz	kHz
mHz or mhz	MHz
mbps	Mbps
kbps	Kbps
CODEC or Codec	codec
PF or pf	pF
msec	ms
µsec	µs
nsec	ns

(1) Confirm with the engineer to ensure correctness.

The terms that follow can be mistakenly interchanged and sourced incorrectly:

- nA (nanoampere) and NA (not applicable, not available)
- µs (microsecond) and µS (microsiemens)
- LSB (least significant bit) and LSByte (least significant byte)
- MSB (most significant bit) and MSByte (most significant byte)
- KB (kilobyte) and Kb (kilobit)

Ensure that an appropriate descriptive noun follows a standard-based terminology such as Inter-Integrated Circuit (I2C and I²C).

Table 10-2. Appropriate Descriptive Nouns I2C or I²C

Format	Descriptive Noun
I2C	module
	peripheral
	pin
	register
	signal
I ² C	bus
	device
	interface
	mode
	subsystem

10.1.1 Conflicting Abbreviations for Alternating and Direct Current

Because consistent terminology and usage is a paramount goal, engineers and Technical Documentation group writers must work together to ensure consistency within TI documents.

An example of a recurring inconsistency within our documentation follows. Unfortunately, source documentation very often contains both forms of capitalization.

Valid abbreviations for *alternating current* and *direct current* are supported by the following reference sources:

- *The Chicago Manual of Style* (CMS) is the main grammar and style guide resource for technical writers in the TD group. CMS indicates using the uppercase convention (AC and DC).
- The JEDEC JC-10 Committee's technical documentation standards address solid-state terms, definitions, and symbols. These standards comprise the primary engineering resources supported by TI. Both JEDEC and *The IEEE Standard Dictionary of Electrical and Electronic Terms* indicate the lowercase convention (ac and dc).

Note

For unresolved inconsistencies, the Technical Documentation group writer must connect with the product line to ensure consistent usage.

Note

Use the slash in *AC/DC* and *DC/DC*, which is consistent with TI branding guidelines.

10.1.2 JEDEC Standards

JEDEC is an open standards-setting organization with global membership that includes key technical individuals from most device, assembly, system, and testing companies. The JEDEC standards are set by the JEDEC JC-10 Committee.

Relevant rules:

- Ensure that symbols or abbreviations follow JEDEC, IEEE, or other standards.
- Use the correct symbols for units (% is not a unit of measure and appears directly after a value with no space in between).
- Ensure equation symbols follow JEDEC, IEEE, or other standards and are consistent throughout text.

The specific JEDEC standards used by TI are listed below. For more details, see [JC-10 page on JEDEC.org](#).

Note

Register for free at <http://www.jedec.org/> to access the following standards documents.

- [JESD103 \(JEP103\)](#) *Suggested Product-Documentation Classifications and Disclaimers*
- [JESD88](#) *Dictionary of Terms for Solid-State Technology*
- [JESD30](#) *Descriptive Designation System for SC-Device Packages*
- [JESD77](#) *Terms, Definitions and Letter Symbols for Discrete Semiconductor and Optoelectronic Devices*
- [JESD99](#) *Glossary of Microelectronics Terms, Definitions, and Symbols*
- [JESD100](#) *Terms, Definitions, and Letter Symbols for Microcomputers, Microprocessors, and Memory Integrated Circuits*
- [JEP104](#) *Reference Guide to Letter Symbols for Semiconductor Devices*
- [JEP120](#) *Index of Terms and Abbreviations*

10.2 Titles

The content that follows is from *The Gregg Reference Manual*.

- In titles, use initial capitals for all except the following words:
 - Articles: the, a, an
 - Short conjunctions: and, as, but, if, or, nor
 - Short prepositions: at, by, for, in, of, off, on, out, to, up, per
- Capitalize articles, short conjunctions, and prepositions in the following situations:
 - As the first or last word of a title
 - Immediately after a dash or a colon in a title
 - As an adverb or part of a phrasal verb (see *The Gregg Reference Manual*)
 - In parallel with similar capitalized words
- For hyphenated terms in titles, use these capitalization guidelines:
 - If the first element is a prefix or combining form that can stand by itself as a word, capitalize the second element such as:
 - *Isolated Self-Powered AC Solid-State Relay With MOSFETs*
 - *TI Op Amp Cross-Reference Tool Overview*
 - If the first element cannot stand alone, do not capitalize the second element unless it is a proper noun or proper adjective such as:
 - *mid-August*
 - *mid-2018*
 - *Implementation of ISO14443A Anti-collision Sequence in the TI TRF796x*
 - *85V AC to 265V AC Input, 12V Output, 15W Quasi-resonant Flyback*
 - Capitalize the second element in a hyphenated spelled-out number or hyphenated simple fraction (see the examples that follow).
 - *...Twenty-One or Twenty-First...*
 - *...Two-Thirds in Two-Thirds Majority...*

For more information about titles, see [Section 26](#).

10.3 Lists

In all levels of vertical lists, capitalize the first letter of the first word in each item.

Note

Beginning a list item with a lowercase abbreviation is appropriate if that is the generally accepted form of the abbreviation.

For additional information, see [Section 16](#).

10.4 Nouns and Noun Phrases

Do not capitalize common nouns for generic references (such as those that name modes, commands, or registers). [Table 10-3](#) lists several examples.

Table 10-3. Do Not Capitalize Common Nouns in Generic References

Incorrect With Common Nouns Capitalized	Correct With Common Nouns in Lowercase
...the Self-Bootstrap mode...	...the self-bootstrap mode...
...Find Memory command...	...find-memory command...
The TMS320 Assembler...	The TMS320 assembler...
...the DC-10 Airplane...	...the DC-10 airplane...
...one of the Status Registers...	...one of the status registers...

10.5 Mode Names versus State Names

Individual capitalization conventions are used to differentiate between the names of *modes*, *pin names*, and *states*. State names and pin names are typically all capital letters, whereas mode names are typically lowercase.

Definitions:

- The term *mode* is used to indicate predefined configurations or operating options (for example, active mode or low-power mode).
- The term *state* is used to indicate a temporary or specific condition (of peripherals, devices, or pins, for example).

Be consistent. Do not use the words *mode* and *state* interchangeably. If, for example, you refer to the ACTIVE state, do not also refer to it as the ACTIVE mode, active state, or active mode.

Examples:

- In sleep mode, the device is not able to transmit messages to the bus or receive messages from the bus.
- All functional blocks, internal DC2DCs, clocks, and LDOs are disabled in SHUTDOWN state.

10.6 All Capital Letters

Restrict the use of words in all capital letters for specific references to the following types of terms:

- Acronyms or initialisms
- Pin or terminal names
- Signal names

Example of signal names and instruction names in text:

The IACK (interrupt acknowledge) instruction has an effect on the $\overline{\text{IACK}}$ signal. The timing of the $\overline{\text{IACK}}$ signal is equivalent to that of the $\overline{\text{LOCK}}$ signal when $\overline{\text{LOCK}}$ is used by the SIGI instruction.

- Command or instruction names
- Functional block names from a block diagram
- Register or bit names

Example of a register name and a functional block name in text:

The program-address generation logic (PAGEN) loads the program counter (PC), which is used to fetch individual instructions. Typically, the PAGEN increments the PC as each sequential instruction is fetched.

Example of a bit name in text:

The RAM overlay bit (OVLY) enables mapping of the on-chip dual-access data RAM blocks into program space. OVLY is in the PMST register.

- State names (see [Section 10.5](#))

Example of a state name in text:

ACTIVE state occurs when the system is running. Default values are loaded from the EEPROM during the transition from OFF to ACTIVE state.

11 Warnings, Cautions, and Notes

To help avoid putting TI and our customers at risk, include the appropriate warnings, cautions, notes, and disclaimers in technical documents.

Example 11-1. Correctly Sequenced Consecutive Special Alert Notations

When consecutive alert notations are used (without any other information or elements in between), use the level of severity as follows:

WARNING

A warning has **WARNING** in all capitals, bold, underlined, and centered above the supporting text. The supporting text has bold emphasis.

CAUTION

A caution has **CAUTION** in all capitals, bold, and centered above the supporting text.

Note

A note has **NOTE** in all capitals to the left of the text. Use a note for supplemental information.

11.1 Warnings

A warning in documentation indicates that an action or precaution must be taken to avoid the risk of injury or death to personnel.

WARNING

A warning has **WARNING** in all capitals, bold, underlined, and centered above the supporting text.

- Do not suggest that prescribed actions can prevent problems, difficulties, or danger. To minimize the risk of legal action, use the following type of phrasing in warnings:
 - To minimize the risk of ...
 - To help avoid....
 - To minimize the occurrence of ...
- Use a warning when describing actions that can cause personal injury.

11.2 Cautions

A caution in documentation indicates that an action or precaution must be taken to avoid the risk of damage to components or equipment.

CAUTION

A caution has **CAUTION** in all capitals, bold, and centered above the supporting text.

- Do not suggest that prescribed actions can prevent problems, difficulties, or danger. To minimize the risk of legal action, use the following type of phrasing in cautions:
 - To minimize the risk of....
 - To help avoid....
 - To minimize the occurrence of....
- Use a caution when describing actions that can damage equipment or cause system outage.

11.3 Notes

Notes supply background information or useful advice. However, too many notes may be a sign of poor organization. Would changing a note to a regular paragraph be more effective? Does the content really need to be a note? Is it an aside? If so, try to work it into the rest of the text. Alternately, do you simply need to direct the reader to related information elsewhere?

- Place the notes near the information to which they pertain.
- Do not put procedures in notes.
- A note may contain cross-references to text or to other documents.
- A note may contain multiple paragraphs if all apply to the same section of text or information.
- Notes can be combined into note lists if multiple notes occur close together or if unrelated notes apply to the same text or information.

Note

The term *danger* appears at or denotes the actual point of hazard and is therefore not usually applicable to documentation.

Note

Do not use a warning or a caution if the information is truly supplemental, which belongs in a note.

12 Dashes and Hyphens

This section contains rules for using em dashes, en dashes, and hyphens.

12.1 Using the Em Dash (—)

The width of an em dash is as wide as the letter *m*. The em dash usually marks an abrupt change or break in the continuity of a sentence. It is more emphatic than commas or parentheses.

- Use em dashes sparingly. They do not comply with Global English style and are not appropriate in most technical documentation. Consider replacing the em dash with a period and beginning a new sentence.
- Conversational content can use the em dash (—) in place of commas to set off a nonessential element that requires special emphasis.
- Conversational content can use the em dash instead of parentheses to set off parenthetical expressions or to show separate and disparate thoughts in a sentence.
- When an em dash is used in a sentence, the first word following the em dash is lowercase (unless it is a proper noun).

12.2 Using the En Dash (–)

The en dash (–) is half as wide as an em dash. Use the en dash with no spaces to indicate *to* when specifying a range. Set off the en dash with a blank space on either side.

- terminals RXBD3 – RXBD7
- October 17 – 20
- 2:00 – 3:00 p.m.
- 30MHz – 60MHz

Note

Avoid using the en dash to indicate a range when there is a negative value present. Preferably, use *from* (–value) *to* (value) **or** *from* (value) *to* (–value). Also see [Section 18.2](#).

Use the en dash as a minus (negative) sign and for command options.

- $RFBT / RFBB = (VO / 0.8V) - 1$
- –4V
- –WRITE
- –o compiler option

slashslash divisor

12.3 Using Hyphens

For further information on hyphens and their use in various parts of English (for example: the division or connection of syllables, word elements, or names), see [Section 12.3.2](#), [Section 33](#), and *The Gregg Reference Manual*.

12.3.1 Technical Conventions for Hyphens

Use the following technical conventions for hyphens:

- Use hyphens in timing parameter symbols according to JEDEC Standard 100-A.

Examples of timing parameters with hyphens:

- delay time, RAS low to CAS high: $t_{\text{RASL-CASH}}$ $t_{\text{REL-CEH}}$
- delay time, RAS low to CA release: $t_{\text{RL-CAX}}$ $t_{\text{RASL-CAX}}$ $t_{\text{REL-CAX}}$
- disable time, chip enable to data retention: $t_{\text{EH-VCCL}}$
- hold time, column address after CAS low: $t_{\text{CL-CAX}}$
- hold time, UCAS active after LCAS active: $t_{\text{LCL-UCH}}$ $t_{\text{h(LCL-UCH)}}$
- Use hyphens in part numbers.

Examples of part numbers with hyphens:

- D425008-9761
- ADS4245-EP
- LM5175EVM-HP
- TPS63051-S
- SN54LVC74A-SP
- LM4132-Q1

12.3.2 Grammatical Conventions for Hyphens

Use the following grammatical conventions for hyphens:

- Modifiers

Examples of hyphenated unit modifiers:

- 3-bit field
- 16-pin package

Examples of modifiers without hyphens:

Note

According to *The Chicago Manual of Style*, compounds formed by an adverb ending in -ly plus an adjective or participle (such as *fully qualified* or *largely irrelevant*) are not hyphenated either before or after a noun, because ambiguity is virtually impossible.

- internally generated carrier frequency
- the autonomously handled RF core
- a sharply worded reprimand
- Use hyphens in word combinations that modify nouns in the sentence. [Table 12-1](#) lists examples where the missing hyphen (in the left column) is added (in the right column).

Table 12-1. Hyphens in Word Combinations That Modify Nouns

Incorrect With Missing Hyphens	Correct With Hyphens Added
...can be used as <i>general purpose</i> input or output when....	...can be used as <i>general-purpose</i> input or output when....
...a <i>floating point</i> coprocessor.	...a <i>floating-point</i> coprocessor.
...an interface supporting a <i>16 bit wide</i> multiplexed address.	...an interface supporting a <i>16-bit-wide</i> multiplexed address.
<i>Tile based</i> architecture delivers up to 10 MPoly/sec.	<i>Tile-based</i> architecture delivers up to 10 MPoly/sec.
(1) These values are based on a <i>JEDEC defined</i> 2S2P system....	(1) These values are based on a <i>JEDEC-defined</i> 2S2P system....

13 Emphasis

The acceptable conventions discussed in this section apply to running text in all technical document types that is not instructional. The conventions differ when describing explicit procedural material and instructions that direct users to interact with electronic equipment or GUIs. When describing these computing procedures or formatting developer instructions, apply the conventions described in the [Microsoft Style Guide](#).

13.1 Italics

In addition to the following rules, see [Section 22.2](#).

- Do not overuse italics for emphasis, because the italics lose their effectiveness.
- Use italics rather than all capitals, underscoring, bold, or quotation marks to emphasize a word or phrase. [Table 13-1](#) lists several examples where all capital letters are changed to italics.

Table 13-1. Do Not Use All Capital Letters for Emphasis

Incorrect Use of All Caps for Emphasis	Correct Use of Italics for Emphasis
DO NOT....	<i>Do not....</i>
A NOUN STRING is....	<i>A noun string</i> is....
This is the ONLY time that the pin....	This is the <i>only</i> time that the pin....
This action, called BIT-STUFFING, is....	This action, called <i>bit-stuffing</i> , is....

- Use italics to introduce a key term unless italics occur frequently; then use bold for the key term.

13.2 Bold

Do not use bold for emphasis unless italics are used frequently.

14 Filenames and File Types

No special emphasis for filenames is required. Be sure to include filename extensions, if applicable. Follow the conventions for filenames and file types listed in [Microsoft Style Guide](#).

15 Jargon and Slang

Terms and phrases that may work well in conversational language are often not appropriate in written technical communication. This is especially true when considering writing for a global audience.

Do not use jargon in technical documentation. Use standard English and precise engineering terms. [Table 15-1](#) lists jargon or slang in the left column and scientific terms in the right column.

Table 15-1. Jargon and Precise Language

Incorrect Jargon ⁽¹⁾	Precise, Full Terms
algo	algorithm
auth	authorize, authorization, authenticate
BW	bandwidth
cert	certify, certification
cap	capacitor
config	configure, configuration
decap	decoupling capacitor
demo	demonstrate, demolition, demographic
driverlib ⁽¹⁾	driver library
FW	firmware
HW	hardware
IC	device
MIN and MAX, min and max ⁽²⁾	minimum and maximum
op, oper	operate, operation, operational
rec, recv	receive

Table 15-1. Jargon and Precise Language (continued)

Incorrect Jargon ⁽¹⁾	Precise, Full Terms
spec	specification
SW	software
tran, trans	transmit
val	value
XTAL, xtal ⁽¹⁾	crystal

- (1) Be sure to ask your engineer before replacing the terms listed in this column because they could be correctly used, code-related terminology.
 (2) **Exception:** Use *MIN* and *MAX* as column headers in specifications tables.

Table 15-2 lists examples of sentences rewritten to replace jargon and slang.

Table 15-2. Rewrite to Remove Jargon and Slang

Incorrect Use of Jargon and Slang	Rewritten to Remove Jargon and Slang
The signal must be <i>thresholded</i> before being applied to the pins.	The signal must <i>reach its threshold</i> before it is applied to the pins.
The medium access controller (MAC) implements the IEEE standard 802.11 MAC sublayer using dedicated <i>HW</i> and embedded <i>FW</i> .	The medium access controller (MAC) implements the IEEE standard 802.11 MAC sublayer using dedicated <i>hardware</i> and embedded <i>firmware</i> .
<i>As a rule of thumb</i> , use a narrow trace when placing the....	Delete the jargon phrase from the sentence (or change to <i>generally</i>): Use a narrow trace when placing the... <i>Generally</i> , use a narrow trace when placing the...
Applying more capacitors <i>gives more bang for the buck</i> when designing the....	Applying more capacitors <i>provides the most benefit</i> when designing the...
<i>On the other hand</i> , a 1µF capacitor can be used to eliminate....	<i>Conversely</i> , a 1µF capacitor can be used to eliminate noise.... <i>Furthermore</i> , a 1µF capacitor can be used to eliminate....
When creating new end applications, customers are encouraged to <i>think outside the box</i> ...	When creating new end applications, customers are encouraged to <i>think creatively</i>
An aluminum electrolytic capacitor consists of a wound capacitor element <i>impregnated</i> with liquid electrolyte, connected to terminals and sealed in a can.	An aluminum electrolytic capacitor consists of a wound capacitor element <i>containing</i> liquid electrolyte, connected to terminals and sealed in a can.
Input-pulldown resistors allow <i>tri-stating</i> the input driver.	Input-pulldown resistors allow a <i>tri-state condition</i> of the input driver.
Each EtherCAT <i>slave</i> device reads the data that are addressed to it <i>on the fly</i> and inserts its data in the frame as the frame is moving downstream.	Each EtherCAT <i>subordinate</i> device reads the data that are addressed to it <i>as soon as</i> the data is detected. Then, the <i>subordinate</i> device inserts data into the frame as the frame moves downstream.
<i>Without a doubt</i> , the PoC voltage disturbance must be minimized as much as possible.	The PoC voltage disturbance must be minimized as much as possible.
After Wi-Fi connectivity is enabled, users can be added to or removed from the whitelist <i>on the fly</i> .	After Wi-Fi connectivity is enabled, users can be added to or removed from the whitelist <i>easily</i> .

Note

When jargon must be used to convey a special meaning or concept, explain the term in a way that is clear to the readers. Use the clarity required for the global audience.

16 Lists

There are two broad types of lists: those in vertical format and those in horizontal format. Either type of list can be numbered or unnumbered.

Use numbered lists only in the following instances:

- When listing priorities or relative importance of items
- When describing a procedure or a sequence
- When order is essential to a process

16.1 Vertical Lists

Use the conventions for vertical lists that follow:

- Use a vertical list if any of the following criteria apply to the items:
 - It is necessary to draw attention to the information.
 - There are three or more items.
 - The items have a definite order of importance.
 - The items are complete sentences or complex ideas.
- Precede each vertical list with at least one line of introductory body text.
- Use bullets before each item in an unnumbered vertical list.
- In all levels of vertical lists, capitalize the first letter of the first word in each item. For exceptions to this rule, see [Section 10.3](#).
- Do not continue an introductory sentence after a list.
- Do not connect list items with conjunctions, such as *and*.

16.1.1 Punctuation of Vertical Lists

Use the punctuation conventions for vertical lists that follow:

- Do not connect list items with commas.
- Use a colon to punctuate independent and dependent clauses that function as introductory text.

Example of an independent clause as introductory text:

Laserdisc technology has four obvious advantages:

- No winding or rewinding
- Low storage requirements
- Self-cooling enclosure
- Expansion capability

Example of a dependent clause as introductory text:

The obvious advantages of laserdisc technology are:

- No winding or rewinding
- Low storage requirements
- Self-cooling enclosure
- Expansion capability

Example of *as follows* to introduce a list:

The obvious advantages of laserdisc technology are as follows:

- No winding or rewinding
- Low storage requirements
- Self-cooling enclosure
- Expansion capability
- If the introductory text is a complete sentence and is followed by other complete sentences, use a period at the end of the introductory statement.

Example of introductory sentence with a period:

Use the following strategies when writing for executives. Remember that executives require broad knowledge and access to details.

- Summarize key information in an abstract or introduction.
- Define technical terms.
- Place data in appendices.
- When a list item is a complete sentence, capitalize the first letter of the first word and use terminating punctuation.

Example of complete sentences in list items:

Follow these guidelines for producing a file that relinks:

- The intermediate files produced by the linker must have relocation information for relinking.
- The intermediate files used must have symbolic information.
- The intermediate link steps must be properly sequenced.
- When a list item is *not* a complete sentence, capitalize the first letter of the first word, but *do not* use terminating punctuation.

Example of incomplete sentences in list items:

The output sections are constructed from the following input sections:

- Executable code
- A set of interrupt vectors
- A table of coefficients
- A set of variables
- Another .bss section

16.2 Horizontal Lists

Use the conventions for horizontal lists that follow:

- Use a horizontal list for no more than three simple items (that is, straightforward content in very few words).
- Capitalize the first letter of the first word of each list item only if the accepted rule for capitalization applies.
- In a numbered horizontal list, enclose the numerals or lowercase letters in parentheses. Do not use a period after the numeral or letter or the closing parenthesis.

Example of an enumerated horizontal list:

If you encounter a problem with the hardware, you can (1) try to fix it yourself, (2) call a service representative, or (3) order a new unit.

16.2.1 Punctuating Horizontal Lists

Use the punctuation conventions for horizontal lists that follow:

- Separate list items with commas or semicolons according to accepted rules for punctuating a series of words, phrases, or clauses. Use the comma or semicolon before the final *and* or *or*.
- Separate items in a horizontal list with semicolons when the items are phrases that include commas.

Example of semicolons separating list items:

The three groups consist of product management, project management, and program management; marketing, manufacturing, and quality assurance; and product support and service planning.

- Use a colon preceding a horizontal list only if it follows a noun. Do not precede a horizontal list with a colon if it follows a preposition or verb.

Example of horizontal list with a colon:

The research and development organizations are supported by three groups: Human Resources and Administration, Corporate Development, and Finance.

Example of horizontal list with no colon:

Each cabinet is made with two shelves, two cooling fans, and an air-intake grill.

16.3 Maintaining Parallel Structure in Vertical and Horizontal Lists

Maintain parallel structure in vertical and horizontal lists with the conventions that follow:

- Begin each item with a word of the same grammatical kind (noun, verb, or adjective).

Example of parallel structure in a vertical list:

The TMS370 8-bit MCU architecture provides:

- 8-bit CPU
- 13 user instructions
- 14 addressing modes

Example of parallel structure in a horizontal list:

The committee head *chairs* the meetings, *acts* as liaison between the committee and the corporation, and *obtains* approval for the field trial site.

- Do not mix complete sentences with incomplete sentences in the same list.
- Throughout a list, be consistent in the use of voice and verb tense.

Example of consistent voice and tense:

Follow these guidelines for producing a file to relink:

- The intermediate files produced by the linker must have relocation information for relinking.
- The intermediate files used must have symbolic information.
- The intermediate link steps must be properly sequenced.

17 Noun Strings

A *noun string* is a series of nouns used as modifiers in a sentence. In technical documentation, noun strings often are used as hyphenated modifiers (also see [Section 3.2](#)).

Use these conventions when editing for clarity and conciseness:

- Ensure noun string clusters include no more than three nouns.
- Use hyphenation or prepositional phrases to divide a potentially confusing noun string. [Table 17-1](#) lists examples of noun strings that are written correctly. For generally accepted hyphenated terms, see [Section 33](#).

Table 17-1. Noun Strings With Hyphenation or Prepositions

With Hyphenation	Divided by Prepositional Phrases
...metal-fatigue detection errors...	...errors in the detection of metal fatigue...
...input-clock peak-to-peak jitter...	...peak-to-peak jitter of the input clock...
...serial-data transition edges...	...transition edges of the serial data...
...output-clock delay-time edges	...edges of delay time of the output clock...
...signal-propagation-velocity variation...	...variation of the propagation velocity of the signal...

[Table 17-2](#) lists sentences that are rewritten to remove long noun strings.

Table 17-2. Sentences Rewritten to Remove Long Noun strings

Long Noun Strings—Do Not Use	Rewritten to Remove the Noun Strings
The <i>tester input placement accuracy parameter</i> is a <i>test system edge placement (skew) accuracy guard band</i> .	The tester parameter for input placement accuracy is a guard band for the accuracy of the test-system edge-placement (skew).
Contact the <i>South Campus UNIX team coordinator</i> for assistance.	Contact the coordinator of the UNIX team on the South Campus for assistance.
Follow the <i>lead solder station clean-out checklist instructions</i> .	Follow the clean-out instructions on the lead-solder station checklist.
The <i>digital IF processor high integration level</i> indicates the future of SSB equipment.	The high integration level of the digital IF processor indicates the future of SSB equipment.

18 Numeric Data

18.1 Basic Rules for Presenting Numeric Data

Typically, spell single-digit numbers (one through nine) and all numbers that begin a sentence; use numerals to represent numbers 10 and greater. [Table 18-1](#) lists the situations in which using *numerals* 1 through 10 is correct.

Table 18-1. Using Numerals Instead of Words

Conditions	Correct Examples
With symbols and units of measure	3Ω 10MHz
In a modifier when the number is combined with a unit	4-bit field 6V input 8-digit number 3-channel mode
In percentages and ratios	5% 2 to 1
When specific numbers are referenced	the number 3 set the register to 1 set the bit to 1

Table 18-1. Using Numerals Instead of Words (continued)

Conditions	Correct Examples
With similar numbers that are represented as numerals	4, 8, 16, or 32 bytes 8 input pins and 16 output pins
Time and dates	9:00 a.m. September 1, 2016
For numbers in the millions or greater	2 million instead of two million ⁽¹⁾
Expressions such as 3-state (Do not begin a sentence with this term.) The term <i>tri-state</i> is the preferred substitute for 3-state. Use the term <i>tri-state</i> only as an adjective (never as a noun or a verb).	Examples of correct use of the adjective <i>tri-state</i> : <ul style="list-style-type: none"> To avoid any bus contention between the host and the TMP107 devices, use a tri-state buffer, such as the SN74LVC1G125. Tri-state gates have an additional input/output enable (OE) where the output values are 0, 1, and Z. Input-pulldown resistors allow a tri-state condition of the input driver.

(1) Use the spelled form of the numeral to begin a sentence (for example, *Two hundred OSCCLK cycles is the watchdog reset duration*).

Do not place a space or a hyphen between a number and an abbreviated unit of measure (see [Table 18-2](#)).

Table 18-2. No Space Between Value and Unit

Technical Abbreviation	Full Term	Example Sentence
2kHz	2 kilohertz	... a resistor value of 2kHz.
1μF	1 microfarad	Choose a capacitor with a value of at least 1μF.
100ns	100 nanoseconds	The typical soft-start period is 100ns.
5V	5 volts	Use an input voltage of 5V for the circuit.

18.2 Indicating Numeric Ranges (Positive and Negative Values)

Use the guidelines that follow for indicating numeric ranges for positive and negative values:

- Use the word *to* (preferred) or an en dash to identify a range of positive values.

Examples of indicating a range of positive values:

- 0 to 7
- 0–7
- 10 to 32 767
- 10–32 767
- Always use the word *to* to identify a range that contains a negative value. Avoid using an en dash in such cases. However, if an en dash must be used, enclose the negative value in parentheses.

Examples of indicating a range with negative values:

- –32 767 to –1
- (–32 767)–(–1)
- –256 to 0
- (–256)–0
- The word *between* excludes the beginning and ending values in a range. Use the words *from* and *to*, instead of the words *between* and *and*, as listed in [Table 18-3](#).

Table 18-3. When Indicating Ranges, Use From...To

Incorrect Use of <i>between...and...</i>	Correct Use of <i>from...to...</i>
The input to the FETs must be <i>between</i> 5.4V <i>and</i> 21V.	The input to the FETs must be <i>from</i> 5.4V <i>to</i> 21V.
The VIN range is <i>between</i> 8.6V <i>and</i> 30V.	The VIN range is <i>from</i> 8.6V <i>to</i> 30V.

18.3 Indicating Decimals, Decimal Numbers, and Groups of Digits

The International Standards Organization (ISO) and the International Electrotechnical Commission (IEC) prefer the use of commas as the decimal sign but recognize that in documents produced in American English, use of the period is more likely. Use the guidelines that follow:

- Use trailing zeros (to the right of the decimal point) only as appropriate to indicate accuracy.

Examples of trailing zeros:

- 24.00 (implies a value from 23.995 to 24.005)
- 2.0 (implies a value from 1.95 to 2.05)
- Precede the decimal point with a zero in a decimal fraction that is less than 1 or greater than –1.

Example of a decimal fraction:

- 0.17
- –0.7

Table 18-4 lists examples where a preceding zero is added before the decimal fraction in text.

Table 18-4. Add a Zero to Decimal Values That are Less Than 1 or Greater Than –1

Incorrect Decimal Value	Correct Decimal Value With a Preceding Zero
The .192 measurement....	The 0.192 measurement....
The .6 default value....	The 0.6 default value....

- Do not use trailing zeros for values that are exact decimal numbers, such as minimum and maximum limits.

Examples of exact decimal values:

- Minimum = 1.3 (not 1.30)
- Maximum = 2.6 (not 2.60)

Note

In accordance with the TI Data Sheet standard, confirm that all maximum and minimum limit values are free of trailing zeros following a decimal point.

- In many cases, it is appropriate to drop the zero after a decimal (for example: write 8.235 rather than 8.2350; write 87 rather than 87.0). TI does not recommend adding trailing zeros for aesthetic purposes.

Note

In the *Device Information* table, the length and height of the package must have two decimal places after the period. The dimension column in this table is the only place a value requires the addition of trailing zeros.

In many instances, authors erroneously use right-padding to achieve aesthetic balance. Table 18-5 lists values in the left column that are right-padded; this practice is not in compliance with TI policy.

**Table 18-5. Do Not Use Trailing Zeros
for Aesthetic Purposes**

Noncompliant Format— Trailing Zeros Added	Recommended Format— No Trailing Zeros
2.00	2
6.00	6
18.50	18.5
25.03	25.03
27.00	27

18.4 Ordinal Numbers

Use the conventions for ordinal numbers that follow:

- Spell out *first* through *ninth* and all ordinals that begin a sentence; use numerals for the ordinals *10th* and greater.

Examples of ordinals in text:

- The first block in the diagram shows...
- Set the eighth bit to...
- VC11 (pin 28) is the sense voltage for 11th cell positive terminal...
- The devices are functionally similar to the LM339 but use 1/20th the power for similar response times...
- In illustrations and tables, numerals in ordinals may be used to save space (see [Figure 18-1](#) and [Figure 18-2](#)).

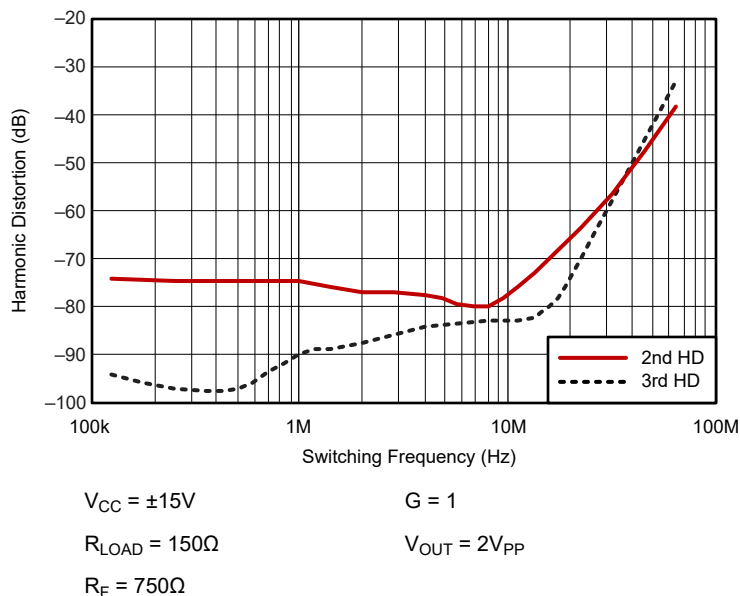


Figure 18-1. Ordinal Numbers in an Illustration

Pin Functions

PIN		TYPE ⁽¹⁾	DESCRIPTION
NAME	NO.		
AIN1	2	AI3.3	1st channel analog signal input ⁽²⁾
AIN2	4	AI3.3	2nd channel analog signal input ⁽²⁾
AIN3	6	AI3.3	3rd channel analog signal input ⁽²⁾
AIN4	8	AI3.3	4th channel analog signal input ⁽²⁾
AINGND1	3	AI3.3	1st channel analog signal ground ⁽²⁾
AINGND2	5	AI3.3	2nd channel analog signal ground ⁽²⁾
AINGND3	7	AI3.3	3rd channel analog signal ground ⁽²⁾
AINGND4	9	AI3.3	4th channel analog signal ground ⁽²⁾
AVDD_LDO	48	AP1.8	Analog core power voltage output (not connected, open)
DVDD_IO	38	DP3.3	Digital I/O power supply
DVSS	39	DGND	Digital ground

Figure 18-2. Ordinal Numbers in a Table

18.5 Metric Physical Dimensions

Use the conventions for metric physical dimensions that follow:

- Specify physical dimensions in millimeters with inches in parentheses.
- For values shown with metric units, use a comma to indicate the decimal point; otherwise, use a period as the decimal point.

Metric units (English imperial units):

- 5,5 millimeters (0.2145 inches)
- 0,10 liter (6.1 cubic inches)
- 0,001 grams (0.015 grains)

Note

Decimal points may be used in place of commas if a note states:
"All linear dimensions are given in millimeters."

18.6 Indicating Bases

Use a subscripted suffix with a non-base-10 number to indicate the base unless confusion is unlikely.

[Table 18-6](#) lists examples.

Table 18-6. Indicating Bases With Subscript

Incorrect With No Base Indicated	Correct With Base Indicated in Subscript
0101	0101 ₂
>01–>FFFF	0001 ₁₆ –FFFF ₁₆
0–77 (base 8)	0 ₈ –77 ₈

Note

When documenting a product that uses a notation for non-base-10 numbers, use the same notation. For example, some applications may use suffixes to identify numeric bases as listed in [Table 18-7](#).

Table 18-7. Using Suffixes to Identify Numeric Bases

Number System	Incorrect	Correct
<i>binary</i>	0101 _b	0101b or 0101B
<i>octal</i>	77 _q	77Q
<i>hexadecimal</i>	1 _h or FFFF _h	1h or FFFFH or 0xFFFF

18.7 Hexadecimal Numbers

In an assembly language or C program, a hexadecimal number begins with a digit (0 to 9); otherwise, it is interpreted as a label. A program, for example, uses 0FFFFh instead of FFFFh.

- In text, omit the leading 0 unless discussing a specific programming example.

Example of hexadecimal numbers in text:

The maximum value is FFh.

Example of hexadecimal numbers in a program:

Label: .byte 0FFH

- Represent large hexadecimal numbers according to the guidance listed in [Table 18-8](#). Separate the groups of digits with a thin space (see the note in the first list item of [Section 18.3](#)).

Table 18-8. Hexadecimal Numbers

Format	24 Bits	32 Bits	40 Bits	48 Bits
h suffix	A4 10B0h	C000 01B0h	00 C000 01B0h	C000 0000 FFFFh
0x prefix	0xA4 10B0	0xC000 01B0	0x00 C000 01B0	0xC000 0000 FFFF

- For other numbers of bits, set off in groups of four, counting from the right.

19 Page Breaks and Line Breaks

19.1 Page Breaks

Add page breaks as necessary to follow these rules:

- Do not start a page with widowed text, that is, a single line or word carried over from a paragraph at the bottom of the preceding page. Retain the entire paragraph on one page.
- Do not end a page with a colon. Move the entire sentence or paragraph to the following page.
- Do not end a page with a heading. Move the heading to the following page.
- Do not continue a warning, caution, or note to another page.

19.2 Line Breaks

Add line breaks as necessary to follow these rules:

- Do not separate the word *Figure*, *Table*, *Section*, *Chapter*, or *Equation* from its corresponding number.
- Do not separate a measurement from its unit of measure.

20 Proprietary Information and Trade Secrets

Do not include proprietary information or trade secrets in technical documentation.

21 Punctuation

For punctuation rules and guidelines, see *The Gregg Reference Manual* and *The Chicago Manual of Style*. Also see [Section 3.4](#), which describes punctuation marks that cause problems during the translation process.

21.1 Nested Parentheses—Text and Mathematics

Use of nested parentheses and brackets is tricky because there are two opposite, but necessary, rules.

- In mathematics, start working from the inside with parentheses, then use brackets outside.
For example: $[x \times y (3y + 6z) - 5]$

Many source providers are accustomed to working with equations, formulae, and all forms of mathematical concepts. As a result, they are used to the "inside out" method. However, this method is in direct conflict with the convention used for text manuscript, which uses the "outside in" method.

- In the body text of a document, start working from the outside with parentheses, then use brackets inside.
For example: ...(for more information, see [8] and [9]).

22 References

A reference is a direct mention of an external resource. A cross-reference is an additional reference to a mentioned text or the text under discussion in the same document. References direct readers to additional sources of information. Cross-references are accurate and contain enough information for the reader to find the referenced material.

Cross-references can exist within a sentence or occur in parentheses as either complete or incomplete sentences.

Use of embedded cross-references (clickable links) makes content reuse much more difficult to create and maintain. The data sheet document type consistently and intentionally reuses content the most often. Because other document types have limited opportunity to reuse existing content, embedded cross-reference links in user's guides, application reports, and reference designs can be used more freely.

Use the phrase *see also* instead of *refer to*, *for more information*, *see*, or *for details*, *please refer to* when referencing another document or another part of the same document. This substitution increases consistency and reduces word count.

22.1 Internal References

Use the following preferred verbs with these cross-references targets:

- Equations *show* or *calculate*
- Figures *show*
- Tables *list*, *provide*, or *show*

Best practice limits the use of embedded (clickable link) cross-references in order to make document maintenance easier for content that has a high probability of reuse, such as data sheets. When creating embedded cross-references in documents other than data sheets, follow the examples show in the tables below.

Table 22-1 shows sentences rewritten to display internal embedded cross-references correctly.

Table 22-1. Internal Cross-references in Low-Reuse Documents

Incorrect	Correct
In the above equations, the SYSCLKOUT cycle indicates the time period of SYSCLKOUT.	Equation 5 and Equation 6 show that the SYSCLKOUT cycle indicates the time period of SYSCLKOUT.
For the sink phase, V_O voltage is applied across the internal LDO regulator and the power dissipation (PDISS_SNK) can be calculated by Equation 3 .	For the sink phase, Equation 3 calculates the output voltage applied across the internal LDO regulator and the power dissipation (PDISS_SNK).
The port schematic is shown in Figure 6-1 .	Figure 6-1 shows the port schematic.
The correct termination of unused pins is listed in Table 4-4 .	Table 4-4 lists the correct termination of unused pins.
The Linux SDK is divided into several directories as shown in Figure 8 .	Figure 8 shows how the Linux SDK is divided into several directories.

To reference a topic section or another document, position the cross-reference element after the topic of the sentence. Table 22-2 shows sentences that are rewritten to display the cross-references correctly.

Table 22-2. References to Sections

Incorrect	Correct
See Section 21.1 for details about nested parentheses and brackets.	See also Section 21.1 .
See Section 19.1 for more information on formatting.	See also Section 19.1 .

22.1.1 Cross-Reference Usage in Data Sheets

Limit the use of embedded links to make content reuse easier in data sheets. Follow these guidelines to create cross-references with no embedded links.

If the original source content is not clear, include a lead-in sentence to introduce an equation, figure, or table that immediately follows, such as:

- Calculate the soft-start period using the following equation.
- The following equation calculates the inductor value.
- The following figure shows isolation circuitry.
- The following table lists component options for this device.
- The *Capacitor Options* table lists part numbers for preferred manufacturers.
- The *Soft-start Timing* table includes resistor settings for the available options.

Table 22-3. Internal References With No Embedded Links

Incorrect	Correct
In the above equations, the SYSCLKOUT cycle indicates the time period of SYSCLKOUT.	The following equations show that the SYSCLKOUT cycle indicates the time period of SYSCLKOUT.
For the sink phase, V_O voltage is applied across the internal LDO regulator and the power dissipation (PDISS_SNK) can be calculated by Equation 3 .	For the sink phase, use the following equation to calculate the output voltage applied across the internal LDO regulator and the power dissipation (PDISS_SNK).
The port schematic is shown in Figure 6-1 .	The following figure shows the port schematic.
The correct termination of unused pins is listed in Table 4-4 .	The following table lists the correct termination of unused pins.
The Linux SDK is divided into several directories as shown in Figure 8 .	The following figure shows how the Linux SDK is divided into several directories.

22.2 External References

Use an embedded reference to link from within topic content to an external resource, such as a web URL, e-mail address, or a document stored on a file server. For references to sections and other documents which provide additional information, position the cross-reference element after the topic of the sentence.

Table 22-4. References to External Resources

Incorrect	Correct
See MSP430FR4xx and MSP430FR2xx Bootloader (BSL) for more details on customizing the BSL.	For more details on customizing the BSL, see MSP430FR4xx and MSP430FR2xx Bootloader (BSL) .
See Std 315-1975: Graphic Symbols for Electrical and Electronics Diagrams (Including Reference Designation Letters) for details.	See also Std 315-1975: Graphic Symbols for Electrical and Electronics Diagrams (Including Reference Designation Letters) . ⁽¹⁾
See the Arm Cortex -M3 Processor Technical Reference Manual r2p1 for more information about the processor.	See also Arm Cortex -M3 Processor Technical Reference Manual r2p1 .
Visit Bluetooth.com to view adopted Bluetooth specifications.	To view adopted specifications, visit Bluetooth.com . ⁽¹⁾
See http://www.jedec.org/ to register and download the standards documents.	Register for free to download the standards documents on the JEDEC site. ⁽²⁾
Visit the High-Performance Computing Forum for customer support.	For customer support, visit the High-Performance Computing Forum . ⁽¹⁾
Visit EEWeb for more information about RadioVerse™.	For more information about RadioVerse™, visit EEWeb .
Visit IEEE.org to access to your account.	To access to your account, visit IEEE .

(1) Do not display the full URL. Embed the URL as hyper-linked text.

(2) Use concise wording to direct the reader when the PDF file cannot be directly linked.

Use the full document title for the URL content to allow search engine optimization (SEO).

Table 22-5. References to TI Documents

Incorrect Format	Correct Format
See CC2650 SimpleLink™ Multistandard Wireless MCU (SWRS158) .	See CC2650 SimpleLink™ Multistandard Wireless MCU .

Identify full title only when referring to another TI document. Do not include the TI literature number. Include the document type (such as application note, user's guide, or data sheet) when those words improve readability and clarity of the sentence. See also [Table 22-6](#).

Table 22-6. References Including Document Type

Incorrect	Correct
See TI Application Note <i>Wireline Data Transmission and Reception</i> (SBOA123).	See also Wireline Data Transmission and Reception Application Note .
See DEM-OPA-SO-1B for more information.	See also the DEM-OPA-SO-1B User's Guide .

- When the document type is mentioned as part of the title, retain the article *the* before the title (for example: See **the** [DEM-OPA-SO-1B User's Guide](#)).
- Do not cite chapter and section numbers or specific titles, because that information can change with a book revision. Instead, indicate the topic.
- For citations of published secondary material that has specific authors, cite the author's last name followed by the year of publication, and enclose it in parentheses; for example, (Smith 2014).
- For citations of IEEE specifications, refer to the specification as a noun and use the abbreviation except in the first reference. Include the full name of the standard on the first reference. Use a footnote to give the full name. In text, use the abbreviation with the appropriate footnote indicator.

Example:

For the sentence below:

The scan logic is compatible with IEEE Std 1149.1–1990 (JTAG).⁽¹⁾

The footnote with the full name appears at the bottom of the page, figure, or table, as appropriate:

(1) IEEE Standard 1149.1–1990, *IEEE Standard Test Access Port and Boundary-Scan Architecture*

- When other documents are listed in the *References* section of a user's guide, add the document type to the title hyperlink (unless the title already contains a document type) to add context for the reader.

References:

- Texas Instruments, [SN74LVC1G175 Single D-Type Flip-Flop With Asynchronous Clear Data Sheet](#)
- Texas Instruments, [SN74LVC1G04 Single Inverter Gate Data Sheet](#)

Use the examples that follow for the basic structural formatting of references to articles, books, or periodicals:

- Author, A. A. (Year of publication). *Title of work: Initial capital letter for the subtitle*. Location: Publisher.
- Author, A. A., Author, B. B., and Author, C. C. (Year of publication). *Title of article*. Title of Periodical, volume number (issue number), pages. <http://doi.org/xx.xxx/yyyy>
- Author, A. A., and Author, B. B. (Year of publication). *Title of article*. Title of Journal, volume number, page range. doi:0000000/000000000000 or <http://doi.org/10.0000/0000>

Following are examples of the basic formatting structure for references to electronic sources:

- Author, A. A., and Author, B. B. (Date of publication). *Title of article*. Title of Online Periodical, volume number (issue number if available). Retrieved from <http://www.someaddress.com/full/url/>
- Author, A. A., and Author, B. B. (Date of publication). *Title of article*. Title of Journal, volume number, page range. Retrieved from <http://www.someaddress.com/full/url/>
- Author, A. A., and Author, B. B. (Date of publication). *Title of article*. In Title of book or larger document (chapter or section number). Retrieved from <http://www.someaddress.com/full/url/>

Note

For conference papers, or in response to a topic from a conference, adhere to the publication guidelines established for the conference.

23 Style

Technical documents are specialized, precise, and factual. Use the style conventions that follow for TI's technical documentation:

- Do not use a marketing style in technical documentation. Use a formal writing style that is simple and direct.
- List benefits and features of the product, but avoid making superlative, comparative, or unsubstantiated claims, such as *fastest* or *most cost effective*.
- Forego humor, which often depends on culture and regions to be effective.
- Be concise. Write simple, short sentences and keep paragraphs as short as possible.
- Delete words, phrases, and sentences that do not add meaning. [Table 23-1](#) lists examples where the unnecessary wording is deleted.

Table 23-1. Delete Unnecessary Wording

Unnecessary Wording	More Concise Wording
...numerals <i>are used to</i> identify....	...numerals identify....
...might <i>result in</i> damage to the....	...might damage the....
...after installation <i>has been completed</i>after installation....
...maximum <i>possible</i>maximum....
... <i>in an effort to</i> improve....	...to improve....
... <i>in order to</i> provide....	...to provide....

- Be precise. Do not use words or phrases such as *several*, *many* or *a number of*.
- Break compound-complex sentences into two sentences to improve readability.
- Do not use incomplete comparisons that use the comparative or superlative form of an adjective without specifying the two (or more) items being compared. [Table 23-2](#) lists examples of adjectives with their comparative and superlative forms.

Table 23-2. Comparative and Superlative Forms of Adjectives

Adjective	Comparative Form	Superlative Form
fast	faster	fastest
high	higher	highest
low	lower	lowest
slow	slower	slowest
small	smaller	smallest

- When using the comparative form of an adjective, always specify the items (or groups of items) being compared. [Table 23-3](#) lists examples about adding the comparison item.

Table 23-3. Comparative and Superlative Adjectives Require the Item Being Compared

No Comparison Item—Do Not Use	Correct With Comparison Item
CPU1 has a <i>faster</i> clock speed.	CPU1 has a <i>faster</i> clock speed <i>than CPU2</i> .
CPU1 has the <i>highest</i> priority.	CPU1 has the <i>highest</i> priority of <i>the three CPUs</i> .
As a general rule, ensure the noise density of the measured device is 10 times <i>larger</i> .	As a general rule, ensure the noise density of the measured device is 10 times <i>larger than the noise floor of the setup</i> .
The DA (TSSOP) is the <i>widest</i> .	The DA (TSSOP) is the <i>widest package</i> offered.

- Do not start a sentence with a filename, a software command, a numeral, or a symbol.
- Do not use the demonstrative pronoun *this* as the subject of a sentence when the preceding sentence does not contain a single noun for which *this* substitutes (see [Section 3.5](#)).
- Do not use telegraphic writing that omits words such as articles, prepositions, and linking verbs. [Table 23-4](#) lists examples where telegraphic writing is made more clear by adding necessary words.

Table 23-4. Do Not Use Telegraphic Writing

Confusing: Missing or Omitted Words	More Concise: Include All Necessary Words
Side test tube cracked at 30 degrees Fahrenheit.	The side of the test tube cracked at 30 degrees Fahrenheit.
In order, color components to be mapped correctly and to avoid swapping....	To correctly map color components and avoid swapping....
Arm subsystem uses AHB port of ARM926EJ-S to connect Arm to config bus and external memories.	The Arm subsystem uses the AHB port of the ARM926EJ-S to connect the Arm to the configuration bus and the external memories.
Short signal trace to reduce capacitance minimize stub from pullup.	Use a short signal trace to reduce capacitance and minimize stub from the pullup resistor.

- Avoid using conditional verbs such as *may*, *should*, *might*, and *could*. These verbs cause confusion regarding the intent of the message. Use conditional verbs sparingly, only when they accurately reflect the content. [Table 23-5](#) lists examples of sentences that are rewritten to replace conditional verbs.

Table 23-5. Avoid Using Conditional Verbs

Incorrect Use of Conditional Verbs	Correct With Conditional Verbs Replaced
Users <i>should</i> place feedback components as close as possible to the device to minimize stray parasitics.	Users <i>must</i> place feedback components as close as possible to the device to minimize stray parasitics.
To switch as fast as possible, keep the clock input buffers enabled that <i>could</i> be switched to (for example, EN_CLKinX = 1).	To switch as fast as possible, keep enabled the clock input buffers that <i>can</i> be switched to (for example, EN_CLKinX = 1).
VREF <i>should</i> be routed as a nominal 20-mil wide trace with 0.1-μF bypass capacitors near each device connection.	<i>Route</i> VREF as a nominal 20-mil wide trace with 0.1-μF bypass capacitors near each device connection.
When in the pin select mode, the host can monitor conditions of the clocking system that <i>might</i> cause the host to switch the active clock input.	When in the pin select mode, the host can monitor conditions of the clocking system that <i>can</i> cause the host to switch the active clock input.

- Do not use complicated passives, such as *should by now have been created*.
- Give positive rather than negative directions. [Table 23-6](#) lists examples where negative directions are rewritten into positive directions.

Table 23-6. Give Positive Rather Than Negative Directions

Negative Directions—Do Not Use	Positive Directions
Do not forget to reconnect the power cord.	Reconnect the power cord.
Do not make the traces long.	Keep the traces short.
Do not place the LSF close to the low-voltage side.	Place the LSF away from the low-voltage side.

- Do not use potentially confusing sentence structure. Keep related words together to avoid interrupting the natural order of the main clause. For example, it is usually not a good idea to separate subject and verb. [Table 23-7](#) lists examples of confusing sentences that are rewritten with more clear structure.

Table 23-7. Rewrite to Avoid Confusing Sentence Structure

Confusing Sentence Structure	Clear Sentence Structure
The MVP parallel processor (PP) is a programmable DSP-like 32-bit integer processor with a 64-bit instruction word that is optimized for imaging and graphics applications.	The MVP parallel processor (PP) functions as a DSP and has a 32-bit integer processor with a 64-bit instruction word. This programmable processor is optimized for imaging and graphics applications.
As such, the WL180x is based upon proven technology and complements the TI integrated devices for connectivity portfolio.	As such, the WL180x is based upon proven technology and complements TI's portfolio of devices for connectivity.
The CC256x solution, in addition to software, consists of multiple reference designs with a low BOM cost.	In addition to software, the CC256x solution consists of multiple reference designs with a low BOM cost.

Table 23-7. Rewrite to Avoid Confusing Sentence Structure (continued)

Confusing Sentence Structure	Clear Sentence Structure
After VBAT and VIO are fed to the device and while WL_EN is deasserted (LOW), the device is in the SHUTDOWN state.	The device is in the SHUTDOWN state after VBAT and VIO are fed to the device and while WL_EN is deasserted (low).

- If an element that is separated from its paragraph by format interrupts a sentence, continue the sentence as if the interruption did not occur. This happens most often with formulas and short, unnumbered examples.

Example of continuing an interrupted sentence:

Newton's laws of motion state that:

$$F = m \times a \quad (1)$$

where

- F is the total force on the object
- m is the mass of the object
- a is the acceleration of the object
- Use effective headings for the material presented. Noun forms are appropriate for material that describes the topic, such as a particular control register. Gerund forms are appropriate for instructing the reader, such as presenting a procedure.

Examples of the noun form of a heading:

- Architectural Overview
- The Role of the Code-Generation Tools in the Software-Development Process

Examples of the gerund form of a heading:

- Displaying Data Values
- Setting Up the System for Statistical Analysis
- When a heading contains a parenthetical expression, use the capitalization conventions of the heading type (see [Section 10](#)).

24 Symbols

Use the following guidelines for symbols. For additional information on symbols, see [Section 3.4](#) and the *Technical Abbreviations, Letter Symbols, and Graphic Symbols Usage Guide* (STDZ004).

- Use unit symbols when they are accompanied by a value.

Example of a value and a unit symbol:

47Ω

Note

A-law and μ-law

- Do not use the ampersand (&) as a substitute for the word *and* except in official names, such as AT&T and A&P.

Note

The C Programming Language by Brian W. Kernighan and Dennis M. Ritchie, is often abbreviated as *K&R*. The C language that is defined in that book is often referred to as *K&R C*.

- Spell the words *number* and *pound* instead of using the octothorpe (#).
- Do not use the plus sign (+) as a substitute for the word *and*.
- Use a full space before and after binary math operators (+, −, =, ×, /, ÷, ±, ≥, ≤, and others).
- Positive values are implied, except in circumstances regarding magnetism and in ranges that include a negative and a positive value (include both symbols for clarity).

Examples:

Magnetic offset: Minimum = -1.5mT , Typical = 0, Maximum = $+1.5\text{mT}$

The operating temperature range for the device is from -40°C to $+125^{\circ}\text{C}$.

Input voltage range: -0.3V to $+6\text{V}$

- Do not use the uppercase X or lowercase x to indicate *times* or *multiplied by* in the text of a document. Instead, use the multiplication symbol (with a space on both sides) or spell the word *times*. Table 24-1 lists examples with the multiplication symbol.

Table 24-1. Correct Use of the Multiplication Symbol

Incorrect Use of the Letters X and x	Correct Use of Multiplication Symbol and Related Wording
This short-term output current rating is approximately 8.5X the dc capability, or approximately $\pm 850\text{mA}$.	This short-term output current rating is approximately $8.5 \times$ the dc capability, or approximately $\pm 850\text{mA}$. or This short-term output current rating is approximately 8.5 times the dc capability, or approximately $\pm 850\text{mA}$.
Parameter f is the switching frequency and ΔI_L is the ripple current in the inductor, that is, $20\% \times I_L$.	Parameter f is the switching frequency and ΔI_L is the ripple current in the inductor, that is, $20\% \times I_L$.
32X 6MHz clock periods = $5.3 \mu\text{s}$	$32 \times 6\text{MHz}$ clock periods = $5.3 \mu\text{s}$ or 32 times 6MHz clock periods = $5.3 \mu\text{s}$
VQFN32 4x4mm package	VQFN32 4mm \times 4mm package

25 Tense

Follow these guidelines in TI technical documents:

- Use the present tense because it is direct, concise, and emphatic.
- Do not use the future tense, especially when describing features or functions. Stating that a feature *will perform* a function suggests that the function is not available but might be available in the future.
- In some cases it is appropriate to use future tense when describing an abnormal operation that is not recommended.

Table 25-1 lists examples of sentences changed from future tense to present tense.

Table 25-1. Use Present Tense

Future Tense (Incorrect)	Present Tense (Converted From Future Tense)
When the UVLO pin potential is greater than 0.4 V, the VCC regulator <i>is then being enabled</i> to charge an external capacitor connected to the VCC pin.	When the UVLO pin potential is greater than 0.4 V, <i>the device enables</i> the VCC regulator to charge an external capacitor connected to the VCC pin.
The output capacitor <i>will be discharged</i> into the output of the regulator because the input was shorted in Step 8.	The output capacitor <i>discharges</i> into the output of the regulator because the input was shorted in Step 8.
The device <i>will release</i> a pullup current of $1.2 \mu\text{A}$ when a soft-start capacitor fully discharges.	The device <i>releases</i> a pullup current of $1.2 \mu\text{A}$ when a soft-start capacitor fully discharges.

Note

Do not use past tense unless it is to describe events that have already occurred (this use is usually appropriate in application notes) or when referring to events that must have occurred for the conditions you are currently describing to be valid.

Correct use of past tense:

The standards committee released a new version of the specification in 2002.

26 Titles—Placement and Using the Generic Part Number

For information on capitalization rules for titles, see [Section 10.2](#).

26.1 Figure Titles

[Table 26-1](#) provides rules about the placement of titles for graphics (figures) based on the document type.

Table 26-1. Placement of Titles on Graphics

Document Type		XMetaL Element for Figure Title	Title Placement
Data sheets	Key graphics on front page	Title element ⁽¹⁾	The title appears above the graphic.
	Other graphics throughout the document	Caption element ⁽²⁾	The title appears under the graphic.
Data manuals	All graphics	Caption element ⁽²⁾	The title appears under the graphic.
User's guides	TI Design guides, application notes, reference guides, Evaluation Module (EVM) documents	Caption element ⁽²⁾	The title appears under the graphic.
Technical reference manuals		Title element ⁽²⁾	Title appears above the graphic

(1) The key graphic must be unnumbered (that is, set the attribute numeration=*none* on the **Title** element).

(2) All figures must be numbered (that is, set the attribute numeration=*decimal* on the **Caption** element).

26.2 Use the Generic Part Number in the Document Title

Note

Always place the generic part number (GPN) as the first term in the title of all data sheets, data manuals, and technical reference manuals.

For multipart data sheets, data manuals, and technical reference manuals, use the GPN family abbreviation with x as the first term in the document title. [Table 26-2](#) lists document titles with the generic part numbers in the correct position.

Table 26-2. Generic Part Numbers in Document Titles

Incorrect Document Titles	Correct Document Titles
0.75Ω 2-Channel SPST Analog Switch With 1.8V Compatible Input Logic	TS5A21366 0.75Ω 2-Channel SPST Analog Switch With 1.8V Compatible Input Logic
USB Charger OVP Switch With ESD for VBUS_CON Pin	TPD1S414 USB Charger OVP Switch With ESD for VBUS_CON Pin
CC3220R/CC3220S/CC3220SF ⁽¹⁾ SimpleLink™ Wi-Fi® Wireless and IoT Solution, a Single-Chip Wireless MCU	CC3220xx SimpleLink™ Wi-Fi® Wireless and IoT Solution, a Single-Chip Wireless MCU
Mixed-Signal Microcontrollers: MSP430FR599x and MSP430FR596x	MSP430FR599x, MSP430FR596x Mixed-Signal Microcontrollers
AM1808/AM1810 ⁽¹⁾ Sitara™ Arm® Microprocessor Technical Reference Manual	AM18xx Sitara™ Arm® Microprocessor Technical Reference Manual

(1) Do not use a slash in device nomenclature. For more information about how to correctly abbreviate family device numbers, see [Section 5.7](#) and [Section 4](#).

27 Tone

Technical documentation is similar to a formal speech—being interesting and entertaining is desirable, but accuracy, consistency, and clarity are of utmost importance. There is no room for jargon or familiar usage of slang, especially when addressing English as a second language (ESL) readers.

- Use an objective tone and a precise vocabulary of industry-standard terminology to inform and educate.
- Use the clarity required for the global audience.

28 Trademarks

Trademarks are symbols, names, words, or combinations thereof used by manufacturers to distinguish their products from those of competitors.

Trade names are the business names used by manufacturers or merchants to identify their business (that is, the name of a corporation, partnership, or sole proprietorship).

Service marks are symbols, names, words, or combinations thereof used by service providers to distinguish their services from the services of their competitors.

Trademarks, trade names, and service marks are protected by law. The use of these marks for products and services is legally exclusive to the owner and his licensees.

Normally, it is unnecessary to distinguish between registered and unregistered trademarks in TI SC documentation. There is no conflict between using the word *registered* in the statement and using the ™ symbol in the body of the document.

The following list is a summary of the requirements when using trademarks in literature. For all rules and examples regarding the use of TI's registered and unregistered marks in literature, see also [Use of TI's registered and unregistered marks in literature](#).

See a complete list at [Texas Instruments trademarks, servicemarks and approved nouns](#).

Rules for using TI's trademarked terms follows:

- Use TI's trademark as a proper adjective modifying a generic noun on every occurrence in text and graphics (see [Table 28-1](#)).
- Use the exact form of TI's mark.
- For all TI marks, a generic noun must always follow each use of the mark.
- The first occurrence of a TI mark in the body of any text must be followed by the trademark symbol, ™.
- Every occurrence of a TI mark in all of the following places must be followed by the trademark symbol, ™, indicating that the mark is a trademark:
 - Chart title
 - Graph title
 - Figure title
 - Section title
 - Table title
 - Banner
 - Headline
 - Column heading of a table
 - Text contained inside images
- The trademark symbol is a superscript ™ or the letters tm in parenthesis (tm).
- Use each of TI's marks alone. Do not use multiple marks in series (see [Table 28-1](#)).

Table 28-1. Trademark Placement

Incorrect Trademark Placement	Correct Trademark Placement
TI™ ThunderLan™ network controller...	ThunderLan™ network controller from Texas Instruments....
Sound Plus™ OPA169x Low-Power Audio Operational Amplifier	OPA169x Low-Power Sound Plus™ Audio Operational Amplifier

- According to [Texas Instruments trademarks, servicemarks and approved nouns](#), *Texas Instruments* is a trademarked term followed by an approved generic noun on the first occurrence in body text. Include *Texas Instruments* in the *Trademarks* section in each document.
- See the [Adding a Trademark](#) page on our Confluence site for instructions.
- Do not use a trademark as part of a hyphenated term. See also [Table 28-2](#) lists examples of correct hyphenation with a trademark term.

Table 28-2. Hyphens With Trademark Terms

Incorrect Use of Hyphens	Correct Examples
Windows®-based application	Windows® based application
MSP430™-related documentation	MSP430™ related documentation
SimpleLink™ WiFi® Internet-on-a chip™ device	SimpleLink™ Wi-Fi® Internet-on-a chip™ device

Note

Occurrences of Cortex processors that include registered trademark symbols retain the hyphen as part of the name.

The statement that follows is from the <https://www.arm.com/> web page regarding the correct trademark usage guidelines.

Do not alter the spelling or form of Arm's trademarks by abbreviating them, creating acronyms, translating them, joining them to other words, symbols or numbers (either as one word or with a hyphen, unless otherwise permitted; for example, Arm® Cortex®-A15), or using improper capitalization. However, permitted capitalization occurs when using an Arm word trademark in headlines, titles, or text where all of the surrounding words are shown in uppercase characters. In this situation, you may use the relevant Arm trademark in uppercase characters, provided that such use complies with these guidelines.

Add the registered trademark symbols again for each processor (Arm® Cortex®-M0, Arm® Cortex®-M3, and so on) at the first occurrence in the text.

The correctly placed registered trademark symbols in the right column of [Table 28-3](#).

Table 28-3. Correct Trademark Placement

Incorrect Trademark Placement	Correct Trademark Placement
All devices are centered around an Arm® Cortex-A15® series processor...and the Cortex-M0 processor handles....	All devices are centered around an Arm® Cortex®-A15 series processor...and the Arm® Cortex®-M0 processor handles....

Note

According to the trademark use guidelines from Arm Limited (or its subsidiaries), the appropriate trademark symbol (registered or unregistered) is required in headlines when there is no accompanying text with the trademarked term. This guideline means that the trademark symbol may be required again after the first occurrence in the body of the document. For more detailed information, see [Arm Trademark Use Guidelines](#).

- Do not use trademarks in the possessive form (unless the trademark is established in possessive form, such as Levi's® jeans).

Note

The possessive form *TI's* is acceptable.

- The basic branding guidelines for the word mark *Bluetooth*® per Bluetooth SIG are as follows:
 - Do not use as a standalone noun
 - Always capitalize
 - Include registered trademark symbol, ®, on the first occurrence
 - Italicize the first occurrence
 - Do not use abbreviations for Bluetooth technology (except in space-constrained areas in images):
 - Change from *BT* to *Bluetooth*
 - Change from *BLE* to *Bluetooth low energy* (the words *low energy* must be lowercase)
 - Change from *Bluetooth LE* to *Bluetooth low energy*
 - Do not use *Bluetooth Smart* because this terminology is no longer a brand used by Bluetooth SIG (ask your engineer for the appropriate replacement for *Bluetooth Smart* in the document).

29 Using Second Person Pronouns

Use the following guidelines when writing in the second person perspective.

- For rules about avoiding bias in language when using pronouns, see [Section 8](#).
- Do not use the second person *you* unless the sentence cannot be reworded to avoid it. Second person is acceptable occasionally in application notes. Avoid using second person perspective in data sheets and user's guides. The following table shows reworded sentences to eliminate the second person perspective.

Table 29-1. Eliminating *you* in Second Person

Second Person <i>you</i> — Do Not Use	Correctly Worded
After <i>you</i> achieve the previous status, <i>you</i> must issue an ICEPick instruction 111110(0x3E) so <i>you</i> can clear the debug unlock command.	After the device achieves the previous status, it must issue an ICEPick instruction 111110(0x3E) to clear the debug unlock command.
There <i>you</i> can see a drop down list of target connections, choose your debugger from this list and click OK.	Choose the debugger from the drop-down list of target connections and click OK.
Consult <i>your</i> PMIC data sheet for details.	Consult the PMIC data sheet for details.
When <i>you</i> reset PHYs (using USB_GUSB2PHYCFG or USB_GUSB3PIPECTL registers), <i>you</i> must keep the core in the RESET state until PHY clocks are stable.	When resetting PHYs (using the USB_GUSB2PHYCFG or USB_GUSB3PIPECTL registers), maintain the core in the RESET state until PHY clocks stabilize.

30 Voice

The grammatical term *voice* indicates the relation of the subject to the action of the verb. Verbs can have two voices: *active* and *passive*. Use the active voice as much as possible for technical documentation.

Definitions:

- A verb is in the active voice when the subject carries out the action named by the verb. Active voice is strong and emphatic and requires few words.
- A verb is in the passive voice when the subject receives the action named by the verb. A passive construction always uses some form of the auxiliary verb *to be*, plus the past participle of the principal verb.

Value:

- The active voice is simple, direct, and easy to understand.
- Use the passive voice only when a sentence is more clear than it would be in the active voice.

Conversion:

To change a sentence from passive to active voice, make the performer the subject, the original subject the direct object, and delete the form of *to be*.

Example sentence: *These features have been developed by TI.*

Change the example sentence from passive voice to active voice as shown in the steps that follow:

1. Make the performer (**TI**) the subject.
2. Make the original subject (**These features**) the direct object (receiver of the action).
3. Avoid the form of the verb *to be* (**be, am, are, is, was, were, have been**).
4. The result is a sentence with active voice: *TI developed these features.*

[Table 30-1](#) lists examples of sentences in passive voice that have been rewritten and converted to active voice.

Table 30-1. Use Active Voice

Passive Voice (Incorrect)	Active Voice (Converted From Passive Voice)
It was determined that confusion can <i>be</i> caused by inconsistent terminology.	Inconsistent terminology causes confusion.
The CS pin <i>is being</i> deasserted by setting it to its inactive state.	Set the CS pin to its inactive state to deassert the pin.
The document revision <i>will be</i> made by the TD group.	The TD group creates the document revision.
A status update must <i>be</i> sent by the system.	The system must send a status update.
The device should <i>have been</i> polled by the browser.	During normal operation, the browser polls the device.
The form factor of the board must <i>be</i> designed to match the LaunchPad beneath it.	Design the board so that the form factor matches the LaunchPad beneath it.

31 Word Choice

Use the guidelines that follow for word choice in TI's technical documents:

- Do not use jargon, slang, or idioms if you can use a common English equivalent (see [Section 15](#)).
- Choose simple rather than complex abstract words.
- Do not use multiple terms for the same product or object.

Example with multiple terms for the same object:

The interface-adapter pod has the connector for attaching the 16 *probes* that you can use to monitor parts of your target system. These *test leads* are color coded to identify each of the 16 channels.

Example rewritten to clarify that probes and test leads are the same objects:

Use the interface-adapter pod to connect the 16 *probes* to monitor parts of the target system. These color-coded *probes* identify each of the 16 channels.

- Do not use words with multiple meanings, which can confuse readers, especially readers who do not have English as their primary language. [Table 31-1](#) lists examples where sentences with multiple meaning words are rewritten with more concise word choice.

Table 31-1. Do Not Use Words With Multiple Meanings

Words with Multiple Meanings	Concise Word Choice
The <i>display</i> flickers during thunderstorms.	The <i>screen</i> flickers during thunderstorms.
Monica <i>displays</i> the charts.	Monica <i>shows</i> the charts.
<i>Check</i> that the <i>monitor</i> is turned on. <i>Monitor</i> the changes in the curve as the information is processed.	<i>Confirm</i> that the <i>monitor</i> is turned on. <i>View</i> the changes in the curve as the information is processed.

When referring to LED functions in technical documents, choose concise wording to convey the exact meaning of the sentence.

To avoid confusion among global audiences, choose simplified terms from the *Correct Wording* column of [Table 31-2](#).

Table 31-2. Correct Wording About LEDs

Incorrect Wording		Correct Wording	
goes on, lights, illuminates, glows, brightens	The detection latch LED (amber) and the fault LED (red) must never <i>illuminate</i> during the test.	emit light	Ensure that the detection latch LED (amber) and the fault LED (red) never emit light during the test.
goes out, extinguishes, dims	If the LED <i>goes out</i> , the supply current is below the minimum requirement.		When the LED stops emitting light, it is an indication that the supply current is below the minimum requirement.

- Do not use the less-common part of speech term if it might cause confusion with the global audience. For example, the word *select* is most commonly used in technical documents as a verb. Because *select* is also an adjective, avoid using this form of speech because it could cause confusion. Change from *select* as an adjective to *certain* or *specific* for a more concise sentence.
- Do not use the *and/or* construction. [Table 31-3](#) lists examples where the sentences with the incorrect *and/or* construction are rewritten.

Table 31-3. Eliminating *and/or*

Incorrect Use of <i>and/or</i> Construction	Correct Examples
Set the necessary control signals <i>and/or</i> bits.	Set the necessary control signals, bits, <i>or both</i> .
	Set the necessary control signals <i>or</i> bits.
Additional pads are available at the inputs of the THS4520 to allow insertion of capacitor <i>and/or</i> resistor networks.	Additional pads are available at the inputs of the THS4520 to allow insertion of capacitor <i>or</i> resistor networks.

Table 31-3. Eliminating *and/or* (continued)

Incorrect Use of <i>and/or</i> Construction	Correct Examples
For a complete list of compatible interface <i>and/or</i> accessory boards for the EVM or the ADS1672, see the product folder.	For a complete list of compatible interface <i>and</i> accessory boards for the EVM or the ADS1672, see the product folder.

- Table 31-4 lists preferred word choice that must be followed in TI's technical documents. Select words from the right column of Table 31-4 to replace occurrences of those in the left column.

Table 31-4. Preferred Word Choice

Incorrect Word Choice	Preferred Word Choice
able to, capable of	can
a single	one
as	because
attempt	try
attempts to	tries
contain (or contains) a description	describes
continue on	continue
cover, discuss	describe
foreign	international
formulae	formulas
get rid of	delete
guaranteed ⁽¹⁾	specified, assured
guaranteed to ⁽¹⁾	specified to, assured to
happens, takes place	occurs
IC, part, part number	device
ideal for, suited for, perfect, well-suited for	designed for, engineers can use it for
is dependent on	depends on
kill or abort	cancel
left hand	left
needs to	must
one and only one	only one
possesses	has
prior to	before
right hand	right
superior ⁽²⁾	designed for, engineers can use it for
switch back to	switch to
switch back from	switch from
switch over from	switch from
switch over to	switch to

Table 31-4. Preferred Word Choice (continued)

Incorrect Word Choice	Preferred Word Choice
TI Design	design guide
two halves	halves
utilize	use

- (1) For legal reasons, the word *guarantee* cannot appear in any form in any technical documentation.
- (2) Comparative words like *superior* need definition as to what aspect is superior with measurable and verifiable detail. Use comparative terms selectively in technical documentation.

- When to use the word *via*, and when to avoid it:
 - A *via* is an electrical connection between layers in a physical electronic circuit that goes through the plane of one or more adjacent layers.
 - Unless you are describing circuit design or PCB layout, avoid using the Latin term *via* in technical documentation. Instead, spell the words *through*, *by*, or *with* to avoid confusion.

32 Word Use

The following words are commonly misused in writing:

1. Ability, capability

- *Ability* implies possibility.
- *Capability* implies unrealized potential.

Example:

All nations at the World Cup have the ability (are able) to win (in the sense that it is possible), while only a few have the realistic capability (are capable) of winning (that is, have the necessary skills, tools, or physical attributes to do so).

2. Affect, effect

- *Affect* is a verb meaning "to influence" or "to have an effect on."

Example:

The number of users affects the speed of the operation.

- *Effect* can be either a verb meaning "to cause, to bring about", or a noun meaning "the result of some action."

Example of effect as a verb:

The technical writer effects the engineer's requested changes in the data sheet.

Example of effect as a noun:

The effect is immediate.

3. Aim, goal, intention, purpose

- *Aim* has multiple meanings as a noun and a verb. Therefore, *aim* is not the preferred choice.

Note

The verb *point* is preferred instead of *aim* per STE guidelines.

- *Goal* is a noun that means "something you aspire to do or wish to do."

Example:

The ultimate goal of the SimpleLink platform is to achieve 100 percent code reuse when your design requirements change.

- *Intention* and *purpose* are nouns that mean "a determination" or "a plan to do a specific thing."

Examples:

- The intention of this application note is to provide information about how to select an appropriate crystal for the CC13xx device.
- The purpose of the Alternate Mode Entry Queue register is to specify the entry order for mutually exclusive alternate modes.

4. Allow, enable

- *Allow* is a verb meaning "to permit."

Example:

The OSP allows on-site and remote operations.

- *Enable* is a verb that can mean either "to supply with the means" or "to give power, capability, or sanction."

Example:

The modem enables the operator to work at a remote site.

5. Alternate or alternately, alternative or alternatively

- *Alternate* is an adjective meaning "designating or relating to every other one of a series" or "serving or used in place of another; substitute."

Examples:

- I go to work on alternate Saturdays.
- We followed an alternate route.

- *Alternative* is a noun meaning "the choice between two mutually exclusive possibilities," but it is also used with the meaning "one of a number of things from which one must be chosen," although this meaning is identified as a usage problem in *The American Heritage Dictionary*.

Example:

One alternative was to use an alternate route.

6. Among, between

Among and *between* are prepositions that pertain to positions in space .

- Use *among* when referring to three or more persons or objects.

Example:

There was considerable disagreement among the reviewers.

- Use *between* when referring to two persons or objects.

Example:

The cable is connected between pins J1 and J7.

7. As, because, since, while

Note

To avoid ambiguity, do not use *as* in place of *because* or *while*.

- *As* is an adverb used for comparison that means "as the same amount."

Example:

In systems with one-to-one or greater magnification, design output optics with *f* numbers as small as *f* / 2.4 for desirable results.

- *Because* is a conjunction meaning "for the reason or cause that; on account of the fact that."

Examples:

- Do not move an excessive number of regions, because this can have a negative impact on the remainder of the critical path
- Because different cultures may not be familiar with how things are done in the United States, avoid references to American sports and entertainment and uniquely American phrases like *to touch base*.

Note

Do not use *since* and *because* interchangeably when describing causation. Use *since* in references to time; use *because* in references to causation.

- *Since* as an adverb meaning "from then until now" or "between then and now."

Examples:

- I have been reading this book since March.
- Overflow or saturation has not occurred since reset or since the bit was last cleared.
- *While* is a conjunction meaning "duration" or "in a certain time."

Examples:

- This register may be read while the TEMPUPD.STAT bit is set to 1.
- The BUSY bit of the UART Flag register is asserted when data is written to the TX FIFO, and it remains asserted while data is transmitting.

8. Assure, ensure, insure

- *Assure* means *to give someone confidence*. The object of this verb must always refer to a **person**.

Example:

He assured the customer that the device will operate at –40°C.

- *Ensure* means *to make certain*. Use the verb *ensure* when describing a **situation**.

Example:

Ensure that the correct filename is entered.

- *Insure* means *to protect against monetary loss*.

Example:

The art collection is insured for \$2 million.

9. Can, may

- *Can* is a verb meaning "is able to."

Example:

The string can be up to 32 characters long.

- *May* is a verb meaning "is permitted to" or "is likely to."

Example:

If you use the ABORT command, data may be lost.

10. Clear, set, write

- *Clear* is a verb that means "to write a binary 0 to a bit or field."
- *Set* is a verb that means "to write a binary 1 to a bit."
- Use *write* when referring to putting a specific value in a field.

Note

There are cases where the user must write 1 to a bit to change it to 0 (clear it). This means that the program loads the bit with 1, and this loading automatically makes the bit 0 in hardware. Be sure you know how the device works when you write about setting and clearing.

11. Collocate, colocate

- *Collocate* means "to place side by side or in a particular relation."
- *Colocate* means "to locate together; to place two or more units with or close together so as to share resources or a common facility."

12. Compare to, compare with

- *Compare to* means "to assert a similarity between two things."

Example:

Compared to the system schematic, the timing diagram is a simple illustration.

- *Compare with* means "to appraise or measure one thing in relation to another."

Example:

It is important to compare the features of the CC2630 device with those of the CC2650 device.

13. Complement, compliment

Both words can act as nouns or verbs.

- *Complement* (as a noun) means "something that completes or makes up the whole."
 - **Example:**
A complement of Navy personnel boarded the freighter.
- *Complement* (as a verb) means "to complete or perfect" and "to perform a Boolean NOT operation."
 - Example:**
The automatic delete function complements the program.
- *Compliment* (as a noun and a verb) refers to flattery or praising remarks, so this word is more likely to appear in marketing literature than in technical documents.

Examples:

- Stacy paid Sasha a lovely compliment at her graduation.
- Mom complimented me for cleaning my room.

14. Complete, finish

- *Complete*, when used to mean "to bring to an end," is a transitive verb and requires an object.

Example:

When the radio station completed its broadcast day, it played the National Anthem.

- Use *finish*, *end*, or *terminate* as an intransitive verb if there is no object.

Example:

When the process *finishes*, control returns to the application.

15. Comprise, compose, include

- *Comprise* is a verb meaning "to be made up of, to consist of." There is no passive voice to *comprise*, thus *is comprised of* is never correct, although *is composed of* or *consists of* is correct. The whole comprises the sum of its parts; the parts compose the whole.

Example:

The parent corporation comprises (consists of) three major divisions.

- *Compose* is a verb meaning "to make up the constituent parts of."

Examples:

- Three major divisions compose (make up) the parent corporation.
- The parent corporation is composed of (is made up of) three major divisions.
- *Include* is typically a verb "meaning to take in as a part, an element, or a member." Use *include* to introduce a partial list. Using *include* to introduce a complete list creates ambiguity by indicating that other items or functions exist but are not listed. This difference in use is especially important in lists of hardware components, features, functions, or contents of a package.
- Use *comprise* or *compose* to introduce a complete list.
- *Include* is sometimes used as an adjective when describing software development. Use *include* as an adjective only when describing industry-specific terms such as: include files, include statements, and include elements.

Example:

The include element adds multiple schemas with the same target namespace to a document.

16. Continual, continuous, contiguous

- *Continual* means "repeated at frequent intervals."

Example:

The device needs continual monitoring.

- *Continuous* means "uninterrupted."

Example:

System operation is continuous.

- *Contiguous* means "sharing an edge or boundary; touching; adjacent."

Example:

Program space and data space are contiguous in the memory map.

17. Correct, right

Note

For clarity and conciseness, TI recommends using *right* only to indicate placement (that is, a direction opposite of left). [Table 32-1](#) lists examples of inaccurate and proper use of the word *right*.

The word *right* has multiple meanings:

- A noun meaning "qualities (such as adherence to duty or obedience to lawful authority) that together constitute the ideal of moral propriety or merit moral approval"

Example:

TI reserves the right to make corrections, enhancements, improvements, and other changes to its TI Resources.

- An adjective meaning "conforming to facts or truth" and "most favorable, desired, or preferable"
- An adjective meaning "the right side: a part or location that is on or toward the right side"

Table 32-1. Use of the Word *Right*

Examples of Inaccurate Use	Examples of Proper Use
Select the <i>right</i> level-translation solution based on the requirements of your high-performance application.	Select the <i>correct</i> level-translation solution based on the requirements of your high-performance application.
Choose the <i>right</i> architecture for real-time signal processing designs.	Choose the <i>most appropriate</i> architecture for real-time signal processing designs.

Correct has multiple meanings:

- An adjective meaning "conforming to an approved or conventional standard"

Examples:

- Use the application note to aid in your selection of the correct LP8860-Q1 EEPROM version for your use case.
- The settings also provide a correct ADC reference voltage.
- A transitive verb meaning "to make or set right, to amend," "to counteract or neutralize," or "to alter or adjust"

Examples:

- Upon hot plug-in, the device detects and corrects the bus polarity within the first 76ms of bus idling.
- Measure air temperature with a temperature sensor so you can correct for distortion and improve accuracy.

18. Criteria, criterion

- *Criteria* is plural.

Example:

All criteria are carefully described in these definitions.

- *Criterion* is singular.

Example:

Clock speed is the most important criterion.

19. Data

Data can be singular or plural. Be consistent in your use.

Examples:

The data in the register is shifted out during the next clock cycle.

All data in the registers are shifted out during the next clock cycle.

20. Differ from, different from, different than

- The word *differ* means "to have qualities that are not the same as those of something else."

Example:

Page numbers for previous revisions may differ from page numbers in the current version.

- Both *different from* and *different than* have been accepted forms of standard American English for hundreds of years. However, when the sentence has a trailing noun or noun phrase, *from* works best.

Example:

The TAS5727 GDE UI is different from the description in the application note, [TAS57xx Dynamic Range Control](#).

- When the sentence includes a trailing clause, the word *than* can be the more elegant choice.

Example:

The C674x memory map is slightly different than it was in earlier releases of the data sheet.

- One solution to avoid awkward constructions is to add a term that is obviously singular or plural after the word *data*: "store the data *files*" or "retrieve a data *item*."

21. Due to, because of

- *Due to* introduces an adjective phrase and modifies a noun or a pronoun. It is typically used after some form of the verb *to be*.

Example:

Her success is due to talent and hard work.

- *Because of* introduces adverbial phrases and modifies verbs.

Example:

The department meeting is cancelled because of a scheduling conflict.

- In most cases of technical documentation, *because of* is a better choice than *due to*.

22. Fewer, less than

- *Fewer* refers to number and is used with plural nouns.

Example:

You can store fewer words in 40KB of memory than in 45KB of memory.

- *Less than* refers to degree or amount and is used with singular nouns.

Example:

The preset output voltage error is less than $\pm 5\%$ over load, line, and temperature.

23. Gauge, gage (antiquated, old English usage)

Gauge can be used as a noun or a verb.

- As a noun, *gauge* can mean the following:
 - "An instrument or device for measuring the magnitude, amount, or contents of something"

Example:

Use a pressure gauge to measure the PSI of the tire.

- "Thickness, size, or capacity of something, especially as a standard measure"

Example:

The gauge of the wire is 5mm in diameter.

- As a verb, *gauge* can mean the following:
 - "To estimate or determine the magnitude, amount, or volume of"

Example:

Quickly gauge humidity and IR temperature with the CC2650 SensorTag.

- "To measure the dimensions of (something) with a gauge"

Example:

Gauge the sheet metal with the tempered tool.

Note

Gage is antiquated, old English, and cannot be used in technical documentation.

24. JTAG, IEEE 1149.1

JTAG (Joint Test Action Group) refers to a defunct committee whose charter from IEEE was to draft the specification that now carries the number 1149.1.

Use JTAG only as an adjective modifying a manufactured product or part of a product that is physically labeled with the term JTAG.

Examples:

- JTAG adapter
- JTAG cable
- JTAG interface
- JTAG operations

When referring to the standard, refer to JTAG as a noun and use the abbreviation except on the first reference. You may include the term JTAG in parentheses.

Examples:

- The scan logic is compatible with IEEE Std 1149.1–1990 (JTAG).
- The scan logic is compliant with IEEE Std 1149.1–1990 (JTAG).
- The scan logic complies with IEEE Std 1149.1–1990 (JTAG).

Give the full name of the standard on the first reference, as follows:

IEEE Standard 1149.1-1990, IEEE Standard Test Access Port and Boundary-Scan Architecture

When referring to the standard, you can use a footnote to give the full name and use the abbreviation in the text with the appropriate footnote indicator.

25. More than, greater than, over, beyond, past

- *More than* and *greater than* refer to measurable quantities.

Examples:

- With 40 bits, there are more than 1 trillion possible combinations.
- Voltages greater than the values listed in *Absolute Maximum Ratings* are not acceptable.
- *Over* is a preposition that refers to a position in space, not to a greater number or quantity.

Example:

- Avoid running traces over the top of split ground planes. It is better to use a bridge connecting the two planes in one area.

Note

To avoid ambiguity, use the following:

- *Over* and *under* to describe a position in space
- *More than*, *greater than*, and *less than* to describe numbers and measurable amounts

- *Beyond* is a preposition that means "past, farther than, or outside of."

Example:

Adding the new module increases the power consumption beyond the limit and trips the breaker.

- *Past* is a preposition that means beyond in position or time. Never use it when referring to a measurement.

Example:

To view *past* issues of the Analog Applications Journal, visit the website www.ti.com/aaj.

26. Normal, typical, usual (normally, typically, usually)

Note

Use of *typical* or *usual* is preferred because these words are neutral.

Examples:

- The table presents the typical operating conditions.
- The directory_name is usually the current directory name.

Normally is an adverb with strong connotations. *Normal* stresses adherence to an established standard. Because *normal* is highly connotative, it is best to use *normal* sparingly.

Examples:

- HDQ serial communication is normally initiated by the host processor sending a break command to the fuel gauge.
- His body temperature returned to normal.
- The device is in normal operating mode when EN is high, which allows a transmission path from TXD to LIN and from LIN to RXD.

27. Only

Place *only* as closely as possible to the word it modifies. Usually, that position is directly before the word modified.

Examples:

- He only said that he was thirsty. (He did not say anything else.)
- He said only that he was thirsty. (That was all he said.)
- He said that he was only thirsty. (He was not anything other than thirsty.)

28. Optimal, optimum

- *Optimal* is an adjective that means "the most desirable, most favorable, or most effective."

Example:

The criteria for selecting the *optimal* clock source varies depending on application, ADC architecture, sample rate, resolution, and input frequency.

- *Optimum* is a noun that means "the best condition or amount."

Example:

A folded dipole is attractive because its high impedance makes it easier to match to the impedance *optimum* for the CC2400 device.

29. Prebuild, prebuilt

- As related to computers, *prebuild* is often used as a noun meaning one of the following:
 - A version of a program after compilation, typically an update to an existing version made before the program is released
 - The process of producing a software build
 - A new version or update of data in a database or on a website
 - Frequent, incremental builds of data

Example:

Create a brand new project and add the *prebuild* batch files.

- *Prebuilt* is an adjective that means "relating to or being a structure that is constructed or assembled before being transported to its site of installation."

Example:

The *prebuilt* software package for the TI Design includes the .eni file for a topology where the AM437x is the only slave device that is connected.

30. Shall, will

Use of *shall* and *will* connote future tense. Change sentences to present tense.

Note

When *shall* is used to indicate a required action or instruction, replace it with the word *must* for clarity and conciseness.

31. Solution

Use the word *solution* selectively in TI's technical documentation. Only use *solution* for a true solution that is all-in-one, or one that includes software and other circuitry for a full solution—a single device usually is not a full solution.

32. Synchronous, sync, asynchronous

- The word *synchronous* is an adjective.

Example:

The TPS560430 device is a synchronous step-down DC/DC converter.

- Sync* can be used as a noun, an adjective, and a verb.
 - As a noun, *sync* means "synchronization."

Example:

The SYSREF clocks from the two LMK04610 devices are in sync with multiple power cycles.

- As an adjective, *sync* can be used as in the examples that follow:

Examples:

- The data position within a frame is also configurable with 1-clock (bit) resolution and can be set independently (relative to the edge of the frame-sync signal) for each channel.
- The TPS543C20 device implements a unique clock-sync scheme for phase interleaving during stackable configuration.
- The sync feature reduces D_{MAX} for one channel, but lengthens it for the other channel.
- As a verb, *sync* means "to synchronize" or "to flush all pending I/O operations to disk."

Example:

Sync the divided-down clocks with the OSTRP pin.

- Use the word *asynchronous* only as an adjective.

Note

To avoid confusion, spell the adjective *asynchronous* in place of the abbreviation *async* whenever possible.

Example:

The SN74LVC1G175 device has an asynchronous clear (\overline{CLR}) input.

33. Takeaway, consideration, impression, or outcome

- Use of the word *takeaway* is not preferred. However, if essential to the meaning of the sentence, use the noun form.

Example:

A key takeaway of the meeting is to write for a global audience.

- Depending on the sentence meaning and structure, possible replacement options for the word *takeaway* are:
 - Consideration
 - Impression
 - Outcome

Examples:

- The goal of this application note is to clearly present the hardware design considerations to the developer.
- This section provides an overall impression of the leveling errors across the entire interface.

- The purpose of configuring an unused op amp is to maintain linear and predictable device behavior.

34. That, which

- *That* is a relative pronoun used to introduce a restrictive clause, a clause necessary to the meaning of the sentence.

Examples:

- The car that we rented in England had the steering wheel on the right side.
- The LEDs support two operational modes that are selected by the LED mode strap and a third operational mode that is configurable with the LEDCR register.
- The UCC28722 is a flyback power-supply controller that provides accurate voltage and constant current regulation with primary-side feedback.
- *Which* is a relative pronoun used to introduce a nonrestrictive clause, a clause that can be omitted from the sentence without changing the meaning of the sentence (this clause is set off by commas).

Examples:

- The audience, which was initially indifferent, became more interested in the slide presentation.
- The control law, which provides a wide dynamic operating range of output power, lets the power designer achieve less than 75mW of standby power.

35. Unique

Unique is an adjective meaning one of a kind. A thing is either unique or not; it cannot be rather unique, very unique, more unique, or most unique.

36. While, whereas, although, however

Use the following definitions to convey the concise meaning in your documentation:

- *While* is an adverb used in references to time.
- *Whereas* is a conjunction used to join sentences and indicate a contrast.
- *Although* is a conjunction that means *regardless of a fact*.
- *However* is often used as a conjunctive adverb that means *nevertheless, in spite of, yet, or all the same*.

Note

To avoid ambiguity, do not use *while* to mean *although* or *whereas*.

Examples:

- *While* the initialization process is running, you can take a nap.
- The CHIPS manual is being revised, *whereas* the ADEPT manual is not.
- The 5V supply drops when the current increases above 2A, *although* the device is designed for 7A.
- Any of the amplifier outputs can be shorted to ground indefinitely. *However*, simultaneously shorting more than one output will exceed the maximum junction temperature.

33 Word List

The word list contains the following:

- Preferred spellings of words with alternate forms
- Frequently misspelled words
- Problematic singular and plural forms
- Compound words
- Acronyms that have become words
- Similar words that are often confused; words often misused
- Capitalizations of proper nouns and words capitalized by convention

Note

The intent of this word list is to serve as a guide to provide consistency across TI documentation.

Some words in this list differ from forms in general use. To avoid discrepancies and misuse, it is critical to identify the part of speech (verb, noun, adjective, and so on) of the word in question. In most cases, words are spelled slightly differently (for example, with or without spaces or hyphens) depending on how they are used in a sentence.

This attempt to provide documentation consistency is not intended to override, conflict with, or differ from a TI product line's established, specific product brand-naming convention. Variances could mislead or confuse customers who are used to established conventions.

This word list does not apply where its use conflicts with customer or contract specifications.

Table 33-1 lists information about entries in the word list.

Table 33-1. Abbreviations in the Word List

Abbreviation	Part of Speech
a	adjective
abbr	abbreviation
acro	acronym
adv	adverb
dist	distinguish from
gen	generic
init	initialism
n	noun
pl	plural
pref	preferred
s	singular
v	verb

Quick links to the alphabetized word list: [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#)
[R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)

33.1 A

AC/DC (n, abbr)
ACK (n, abbr)
ACKed (v, abbr)
adapter (n) (common US spelling; adaptor in UK)
ADC (n, init; see analog-to-digital converter)
affect (v) (to influence; also see entry for effect)
airflow (n, a)
airline (n)
all-out (a)
all-over (a)
all-purpose (a)
alpha particle (n)
alpha-particle (a)
 α -particle (n, a)
alpha ray (n)
alpha-ray (a)
ammeter (n) (not amperemeter)
amplifier (n)
amplitude-shift keying (n; see init ASK)
analog-to-digital (a)
analog-to-digital converter (n; see init ADC)
AND (a; must use the words *AND gate*)
AND (n, v; an operation)
ANDed (v)
ANDing (a)
antialiasing (n, a) (not anti-aliasing)
appendix (s, n)
appendixes (pl, n) (not appendices)
application-specific (a)
ASK (n, init; see amplitude-shift keying)
async (a; see asynchronous)
asynchronous (a; see abbr async)
audio frequency (n)
audio-frequency (a)
autoconfiguration (n)
autocorrelation (n, a)

autoinitialization (n)

autoinitialize (v)

autoreference (n, a, v)

autorepeat (n, v)

33.2 B

back annotation (n)

back-annotated (a)

backflow (n, a)

back flow (v)

backlight (n, v)

backoff (n, a) (as in: binary exponential backoff; a backoff procedure)

back off (v)

backplane (n)

backup (n, a)

back up (v)

band gap (n)

band-gap (a)

band-limited (a)

band pass (n)

band-pass (a)

bandwidth (n)

barcode (n)

baseband (n, a)

base bar (n)

base cell architecture (n)

baseline (n, a)

base station (n)

BASIC (n) (computer language)

battery-powered (a)

baud (n) (unit of measure; do not use *baud rate*)

BeagleBone Black (n)

benchboard (n)

bench test (n)

bench-test (a, v)

bidirectional (a)

big endian (n)

big-endian (a)

bimodal (a)
binary-coded decimal (n)
biphase (a)
bit-band (v)
bit-banding (n)
bit-bang (v)
bit-banging (n)
bit clock (n)
bit-clock (a)
bit field (n)
bitmap (n, v)
bitmask (n)
bitpool (n)
bistable (a)
bitstream (n)
bit-stuff (v)
bitwise (a)
blackout (n, a)
bond pad (n)
bond-wire (n)
Boolean (n, a) (algebra)
boot code (n)
boot load (n, v)
boot-load (a)
bootloader (n, a)
bootstrap (n, a)
boot up (n, v)
boot-up (a)
boundary scan (n)
boundary-scan (a)
breadboard (n, a, v)
breakover (n, a)
breakup (n, a)
break up (v)
bringup (n)
bring up (v)
bring-up (a) (as in: bring-up process)

broadband (n, a)
brownout (n, a)
bufferable (a)
buildup (n)
build up (v)
built-in (n, a)
burn-in (n, a)
burn in (v)
burned-in (a)
burned in (v)
burned-up (a)
bus (n, v, s) (not buss)
buses (n, pl) (not busses)
bus bar (n)
bus-bar (a)
bus hold (n)
bus-hold (a)
bus holder (n)
bus-holder (a)
byte stack (n)
byte-stack (a)
bitwise (a, adv)

33.3 C

callback (n, a)
callout (n, a)
call out (v)
callup (n, a)
call up (v)
cannot (v)
capacitor (n)
carkit (n, a)
cathode-ray tube (n; see also CRT)
Celsius (n, a)
centigrade (a) (Celsius pref)
changeover (n)
change over (v)
charge-coupled (a)

chassis (n, s, pl)
Chebyshev (n) (pref, not Tchebysheff)
check bit (n)
checkbox (n)
check-in (n, a)
check in (v)
checklist (n)
checkoff (n)
check off (v)
checkout (n)
check out (v)
checkpoint (n)
checksheets (n)
checksum (n)
checkup (n)
check up (v)
chip select (n)
chip-select (a)
chipset (n)
ciphertext (n)
circuit board (n)
circuitries (n, pl)
clean room (n)
clean up (v)
clear-cut (a)
colocate (v) (to place side by side or in a particular relation)
clock-distribution macro (n)
clock-gating features (n)
clock pulse generator (n)
clock-stop sequence (n)
clock-tree synthesis (n)
closed-circuit (a)
closed loop (n)
closed-loop (a)
closeout (n)
close out (v)
closeup (n)

close up (v)
coauthor (n, v)
COBOL (n, abbr) (computer language)
codec (n)
coexist (v)
coexistence (n)
coexistent (a)
collinear (a) (not colinear)
collocate (v) (arrange side by side)
colocate (v) (share the same space)
common-mode (n, a) (as in: common-mode input range)
compand (v)
companding (n, a)
comparator (n, s)
configurability (a)
connectable (a)
converter (n)
cooldown (n, a)
cool down (v)
coprime (a)
coprocessor (n)
correlate (v)
correlator (n)
cos (n, abbr; see cosine)
cosecant (n; see abbr csc)
cosine (n; see abbr cos)
cost-effective (a)
counterclockwise (a, adv)
coworker (n)
crossband (a)
crossbar (n, a)
cross-channel (a)
crosscheck (n)
cross check (v)
cross connect (n)
crossconnection (n)
cross coupling (n)

cross-coupling (a)
cross-correlate (v)
cross-correlation (n, a)
crossfeed (n, a)
crosshatch (n, v)
crosshatching (n, v)
cross-index (n, a, v)
cross-indexing (v)
crossover (n, a)
cross over (v)
cross-reference (n, v)
cross-referenced (a) (as in: cross-referenced entries)
cross scan (n)
cross-scan (a)
cross section (n)
cross-sectional (a)
crosstalk (n, a)
CRT (n, init; see cathode-ray tube)
csc (n, abbr; see cosecant)
cuing (v) (not cueing)
custom-built (a)
customer-furnished (a)
custom-made (a)
cut-in (n, a)
cut in (v)
cut line (n)
cutoff (n, a)
cut off (v)
cut-on (n, a)
cut on (v)
cutout (n, a)
cut out (v)
cutover (n, a)
cut over (v)

33.4 D

DAC (n, acro; see digital-to-analog converter)
daisy-chain (n, v)

data (s, pl)
database (n, a)
data path (n)
data point (n)
data set (n)
data sheet (n)
daughterboard (n, a)
daughtercard (n, a)
datagram (n)
DC/DC converter (n)
deactivate (v)
dead time (n)
dead-time (a)
deassert (v)
deassertion (n)
debounce (n, a, v)
decrementer (n)
decouple (v)
de-emphasis (n, a)
de-emphasize (v)
de-energize (v)
degauss (v)
deglitch (n, a)
deprecate, deprecated (v)
deprecation (n)
derate (v)
derating (a)
desense (n)
desolder (v)
dialog box (n)
dibit (n, acro) (binary digit pairs)
dielectric (n, a)
digital-to-analog (a)
digital-to-analog converter (n; see acro DAC)
DIP (n, acro; see dual in-line package)
direct-connect (a)
direct-connected (a)

direct-couple (v)
direct-coupled (a)
Doppler shift (n)
double-digit (a)
double-pole double-throw (a)
double time (n)
double-time (a, v)
doubleword (n, a)
downconversion (n, a)
downconvert (v)
downconverter (n)
downgrade (n, v)
download (n, v)
downtime (n)
drop-down (a)
drop-off (n)
drop off (v)
dropout (n, a)
drop out (v)
dual-access RAM (n)
dual in-line package (n; see also DIP)
duplexer (n)
duty cycle (n)
duty-cycle (a)

33.5 E

earth (dirt, ground) (n)
Earth (planet) (n)
earthbound (a)
e-beam (n, a)
eDMA (n, init; enhanced DMA) (do not use EDMA)
effect (n) (result, influence)
effect (v) (dist affect) (to bring about)
efficacy (n)
eFuse (n)
electrochemical (n, a)
electro-magnet (n)
electromagnetic (a)

electromechanical (a)
electronics (s)
electro-optical (a)
electrostatic (a)
email (n, a, v)
emitter-follower (n, a)

endian (a)
endianness (n)
end-point (n, a)
end product (n)
end-product (a)

entropic (a)
entropy (n)
epicycle (n)
epitaxial (a)
Ethernet (n)

ever-increasing (a)
exclusive-OR (a)
expandor (n)

33.6 F

faceplate (n)
fail-safe (n, a)
falloff (n)
fall off (v)
fall time (n)
fan-in (n, a)
fan-out (n, a)
farther (a, adv) (comparative form of far; distance)
fast Fourier transform (n; see init FFT)
fault-finding (a)
fault-free (a)
fault-sensing (a)
feedforward (n, a)
feed forward (v)
feedthrough (n, a)
feed through (v)
FET (n, acro; see field-effect transistor)

FFT (n, init; see fast Fourier transform)
field-effect transistor (n; see acro FET)
FIFO (n, a, init; see first-in, first-out)
filename (n)
fine-tune (v)
fine-tuning (n)
first-in, first-out (n, a; see acro FIFO)
fixed-price (a)
flash memory (n) (dist from Flash, which is the vector graphic application for Web animation)
flat-band (a)
flatpack (n, a)
flip-flop (n)
floating-point (a)
floppy disk drive (n)
floorplan (n, v)
floorplanner (n)
floorplanning (n)
flow chart (n)
flow-chart (v)
flowdown (n, a)
flow down (v)
flyback (n, a)
focused (v) (pref)
focusing (v) (pref)
focuses (v) (pref)
foldback (n, a)
follow-and-hold (a)
follow-on (n, a)
followthrough (n)
follow-up (n, a)
follow up (v)
footprint (n)
force-idle mode (n)
formulas (pl, n) (not formulae)
forward annotation (n)
forward-annotated (a)
forward annotate (v)

forward-looking (a)

Fourier analysis, Fourier series (n)

freezeup (n, a)

freeze up (v)

frequency-shift keying (n; see init FSK)

front-end (a) (as in: front-end loader)

front end (n) (as in: analog front end)

FSK (n, init; see frequency-shift keying)

full-speed (a)

full-time (a)

further (a, v, adv) (distance, to advance, degree or time)

fusemap (n)

33.7 G

gamma ray (n)

gamma-ray (a)

GaN (gallium nitride; not Gallium Nitride or Gallium nitride)

gauge (n, v)

gauss (n, s, pl) (unit of measure)

general-purpose (a)

generator (n)

gigasample (n) (no hyphen)

glitch (n, s), glitches (n, pl) (an irritating disturbance, a false telemetry signal)

glueless (a)

GmbH (n)

go-ahead (n, a)

go, no-go (n, a, v)

gray (n) (not grey)

grayscale (n, a)

33.8 H

half-adder (n)

half-cycle (n)

half-life (n)

halftime (n)

halfway (a)

halfword (n, a)

Hall effect (n)

handbook (n)

handheld (a)
handoff (n, adjective)
hand off (v)
handshake (n, a)
hangup (n)
hang up (v)
hard copy (n)
hard-disk system (n)
hardware (n)
hardwire (v)
hardwired (a)
headend (n) (as in: A cable *headend* receives various signals...)
headway (n)
heat sink (n)
heat-treat (v)
heat-treating (a)
heavy-duty (a)
henry (n, s)
henrys (n, pl)
hermetically sealed (a)
Hi-Z (a) (stands for *high-impedance state*)
high-frequency (a)
high impedance (n)
high-impedance (a)
high-order (a)
high-pass (a)
high-speed (a)
hysteresis (n)
hysteretic (a)
holdback (n, a)
hold back (v)
hold-down (n, a)
hold down (v)
holdoff (n, a)
hold off (v)
holdout (n, a)
hold out (v)

holdover (n, a)

hold over (v)

holdup (n, a)

hold up (v)

hookup (n)

hook up (v)

hung-up (a)

hung up (v)

hypercube (n)

33.9 I

impedance-matching (a)

inclusive OR operator (n, a)

indeterministic (a)

indexes (pl, n)

indices (pl, n) (certain math expressions)

inductor (n)

inertial (a)

in-house (a)

inline (n)

in-line (a)

in-place (a)

interchangeable (a)

internet (n)

Internet of Things (n; see *acro* IoT)

interoperate (v)

interprocessor (n)

intrados (pl, n) (interior curve of an arch)

intraprocessor (n)

inverter (n)

IoT (n, *acro*; see Internet of Things)

isometric (a)

isometrics (n)

33.10 J

joule (n) (unit of energy)

jump-start (n, v)

33.11 K

keep-alive (a)

keep-out (a)
keep out (v)
kelvin (n) (thermal volt)
Kelvin (n, a) (scale or physicist)
keypad (n)
keystroke (n)
keyword (n)
kickback (n, a)
kick-start (n, v)
know-how (n)

33.12 L

label (n, v) (pref)
labeled (a, v) (pref)
labeling (v) (pref)
Laplace transform (n)
large-scale (a)
latch-up (n, a)
latch up (v)
lateral-overflow-drain antiblooming device (n)
layoff (n, a)
lay off (v)
layout (n, a)
lay out (v)
lead (v, present tense of led)
lead (n, metal)
leadframe (n)
lead-in (n)
lead-time (n)
least significant (a)
LED (s), LEDs (pl) (n, acro; see light-emitting diode)
led (v, past tense of lead)
lens (s), lenses (pl)
letdown (n, a)
let down (v)
letter-quality (a)
letup (n, a)
let up (v)

leveled (a, v) (pref)
leveling (v) (pref)
license (n) (not licence)
life cycle (n)
life-cycle (a)
lifetime (n, a)
light-emitting diode (n; see acro LED)
line-replaceable (a)
lineup (n)
line up (v)
line width (n)
links-to-layout (n, a)
liquid-crystal display (n)
LISP (n, abbr) (list programming)
little endian (n)
little-endian (a)
lock-on (n, a)
lock on (v)
lockout (n, a)
lock out (v)
lockstep (a)
lockup (n)
lock up (v)
login (n)
log in (v)
logout (n)
log out (v)
longnose (a)
long-range (a)
long run (n)
long-term (a)
longwave (n, a)
lookdown (n)
look down (v)
look-in (n, a)
look in (v)
lookthrough (n, a)

look-up (n, a)
look up (v)
loopback (n, v)
lossy (a)
louver (n)
low-frequency (a)
low-level (a)
low-lying (a)
low-noise (a)
low-pass (a)
low-power (a)
low-pressure (a)
low-volume (a)

33.13 M

macroblock (n)
macrocell (n)
made-up (a)
makeup (n, a)
make up (v)
makefile (n)
man-machine (n, a)
man-month (n, a)
man-year (n, a)
markoff (n, a)
mark off (v)
Markov chain (n)
markup (n, a)
mark up (v)
mass-produce (v)
mass-produced (a)
mass production (n)
material (n) (matter, substance)
materiel (n) (equipment of the organization as opposed to personnel)
matrix (s), matrices (pl)
maxwell (n) (unit of measure)
McASP (n, acro; see Multichannel Audio Serial Port)
mean time (n) (arithmetical, astronomical)

meantime (n)
mean-time (a)
mean time between failure (n; see init MTFB)
mean-time-between-failures (a)
mean time to repair (n)
mean-time-to-repair (a)
megacell (n)
Megamodule (n)
megohmmeter (n)
metadata (n)
metal-oxide semiconductor (n)
metrology (n) (scientific study of measurement)
mho (n) (reciprocal of an ohm) (obsolete; use pref international standard term siemens)
microammeter (n)
microcontroller (n)
microhenry (n)
microhm (n)
micrometer (n) (measure, measuring device)
micromicrosecond (n) (pref picosecond)
microprogrammable (a)
microswitch (n)
midscale (a)
mil (n) (wire diameter measure, angular measure, unit of length)
milestone (n, a) (significant point)
millihenry (n)
milli-inch (n)
misconfigure (v)
mix-up (n, a)
mix up (v)
mnemonic (n, a)
mockup (n, a)
mock up (v)
monochromator (n)
monopulse (n)
most significant (a)
motor-driven (a)
movable (n, a)

move-out (a)
move out (v)
MTBF (n, init; see mean time between failure)
multibyte (a)
multicell (a)
multichannel (a)
Multichannel Audio Serial Port (n; see also McASP)
multichip (a)
multicycle (n, a)
multielement (a)
multifunction (a)
multifunctional (a)
multilayer (a)
multimaster (a)
multimeter (n)
multimillion-dollar (a)
multimode (a)
multipath (n, a)
multiphase (a)
multiplex (v)
multiplexer (n) ()
multiplier (n)
multipurpose (a)
multiprotocol (a)
multirail (a)
multistage (a)
multistandard (a)
multistep (a)
multitarget (a)
multiyear (a)

33.14 N

N-channel (n)
NACK (n)
NACKed (v)
NAK (v)
NAND (a) (as in *NAND gate*)
NAND (n, v) (an operation)

NANDed (v)
narrowband (n, a)
negative-going (a)
netlist (n, a)
never-ending (a)
next-generation (a)
nibble (n) (1/2 byte)
no-bid (n, a, v)
no-burst (a)
nonce (n)
nonconfigurable (a)
nonconnected (a)
nondefault (a)
nondeterministic (a)
nondirectional (a)
nondiscrete (a)
nonelectric (a)
nonfunctional (a)
noninverted, noninverting (a)
nonlinear (a)
nonlinearity (n)
nonmultiplexed (a)
nonresponsive (a)
nonretention (n)
nonscannable (a)
nonsynchronous (a)
nonvolatile (a)
nonzero (n)
NOR (a) (as in *NOR gate*)
NOR (n, v) (an operation)
NORed (v)
nth (adj) (*italic n*)

33.15 O

1's complement (n)
1's-complement (a)
odd-numbered (a)
off-board (a)

off-center (a)
off-chip (a)
offline (n,a)
offload (v)
off-site (a, adv)
off-the-shelf (a)
ohmmeter (n) (not ohm-ammeter)
onboard (a, v)
on-chip (n, a)
ones (n, pl of one)
ongoing (adv)
online (n,adj)
on-site (a, adv)
on-state resistance (n)
on-time (a)
op amp (n, s), op amps (n, pl)
opcode (n)
open-circuit (a)
open core protocol (n) (open core is not hyphenated because it means openly licensed, core-centric protocol)
open drain (n)
open-drain (a)
open-end (a)
open loop (n)
open-loop (a)
optocoupler (n)
optoelectronics (n)
optomechanical (a)
OR (a) (as in *OR gate*)
OR (n, v) (an operation)
ORed (v)
ORing (a, v)
O-ring (n)
oscillator (n)
overcurrent (n, a)
overdrive (v) (as in: ...overdrive the crystal....)
overestimate (n, v)
overload (n) (as in: Mechanical overload is one situation when a motor can draw higher than its rated circuit.)

overload (v) (as in: to overload with stress)

overloaded (a) (as in: an overloaded circuit)

overrange (a)

overrun (n, v)

oversampling (n, a)

overshoot (n, v)

overtemperature (n, a)

overtime (n, adv)

overvoltage (n, a)

overwrite (a, v)

33.16 P

P-channel (n)

packup (n, a)

pack up (v)

pass band (n)

pass-band (a)

pass-through (n, a)

pathname (n)

peak load (n)

peak-to-peak (a)

pending (v)

person-hour (n, a)

person-machine (n, a)

person-month (n, a)

person-year (n, a)

PFC (n, a, init; see power-factor correction)

phase-in (n, a)

phase-locked loop (n)

phase-locked-loop (a)

phase-shift (n, a) (reword the sentence if used as a verb)

phenomenon (s), phenomena (pl)

photocoupler (n)

photocurrent (n)

photodetection (n)

photodiode (n)

photo-electron (n)

photoetch (v)

photoetching (n)
photogenerated (a)
photoinduced (a)
photoluminescence (n)
photoresist (v)
photoresistance (n, a)
photothyristor (n)
phototransistor (n)
picosecond (n)
pickup (n, a)
pick up (v)
piece part (n)
piece-part (a)
piezoelectric (a)
pinout (n)
pixel (n) (picture element)
plain text (n)
plug-in (n, a)
plug in (v)
pop-up (n, a)
pop up (v)
positive-going (a)
postamplifier (n)
postlayout (n, a)
postscaler (n)
power cycle (n, v) (as in: The user must power cycle the router if it stops responding.)
power down (n, v)
power-down (a)
power-driven (a)
power-factor correction (n, a; see init PFC)
power good or Power Good (n)
power-good (a)
power-off (a)
power off (n, v)
power-on (a)
power on (n, v)
power-saving (a)

power up (n, v)
power-up (a)
powered down (a)
powered-up (a)
preamplifier (n)
prebias (n, a)
prebuild (v)
prebuilt (a)
precharge (n, a)
predriver (n)
preemphasis network (n)
preemphasize (v)
pre-exist (v)
prefetch (n, v)
preloaded (a, v)
pre-regulated (v)
preregulator (n)
prescale (a)
prescaler (n)
prescaling (v)
preset (n, a, v)
presupply (n, a)
printed circuit board (n)
printed wiring board (n)
printout (n)
print out (v)
problem-solving (a)
processor (n)
producible (a)
pseudocode (n)
pseudo-differential (a)
pseudonoise (n)
pseudo-noise (a)
pseudo-random (a)
pullback (n, a)
pull back (v)
pulldown (n, a)

pull down (v)
pull-push (a)
pullup (n, a)
pull up (v)
pulse duration (n)
pulse-forming (a)
pulse length (n)
pulse modulation (n)
pulser (n)
pulse shape (n)
pulse-shape (a)
pulse-train (a)
pulse width (n) (no longer used; use pulse duration)
pulse width modulation (n; see init PWM)
pulse-width-modulation (a)
push-button (n, a)
push-pull (a)
push-push (a)
PWM (n, init; see pulse width modulation)

33.17 Q

quantum (s), quanta (pl)
quasi- (hyphenate all adj; for example, quasi-resonant)
quasi (two words for nouns)

33.18 R

rad (n) (unit of absorbed dose) (dist abbreviation for radian, rad)
radiation-hardened (a)
radioactive (a)
radio frequency (n)
radio-frequency (a)
ramp-down (n, a)
ramp down (v)
ramp-up (n, a)
ramp up (v)
random-access (a)
rank-ordering (n, v)
rate-aiding (a)
readback (n, a)

read back (v) (as in: *to read back the data*)
read-in (n, a)
read in (v)
read-only (n, a)
read-only memory (n)
readout (n, a)
read out (v)
read/write (n, a)
real-case (a) (as in: *a real-case example*)
real time (n)
real-time (a)
recalibration (n)
receiver (n)
recidivous (a)
reconfigure (v)
regulator (n)
rem (n) (treated as a word: roentgen equivalent man)
reparable (a) (pref over repairable)
reprioritization (n)
rerun (v; pref over "re-run")
resistor (n)
resume (n) (a summary; accent mark is unnecessary unless context also includes the verb resume)
resume (v) (to continue an action)
retransmit (v)
retransmission (n)
reverse current (n)
reverse-current (a)
right angle (n)
right-angle (a)
rise time (n)
rise-time (a)
roentgen (n, a)
rolloff (n)
roll off (v)
rollover (n)
roll-over (a)
roll over (v)

root mean square (n) (RMS in letter symbols; for example: $V_{I(RMS)}$)

root-mean-square (a) (rms not in letter symbols; for example: The ratio, expressed as a percentage, of the rms voltage of all harmonics present in the output to the total rms voltage of the output, for a pure sine-wave input)

row-multiplexed (a)

rundown (n, a)

run down (v)

run-in (n, a)

runoff (n)

run off (v)

run-on (n, a)

run on (v)

run time (n)

runtime (a)

33.19 S

savings (pl) (must take plural verb, except idiomatic: savings and loan association)

scan line (n)

scan-line (a)

scannable (a)

scheduler (n)

Schmitt trigger (n)

Schottky (n, a)

screenshot (n)

sea of gates (n)

sea-of-gates (a)

second-source (a)

self-capacitance (n, v)

self-check (n)

self-checking (a)

self-contained (a)

self-impedance (n, a)

self-inductance (n, a)

self-test (n, a)

self-turnon (n)

semiconductor (n)

semi-independence (n)

semi-independent (a)

sensor (n)

sensorless (a)
SerDes (serializer/deserializer)
servo (n) (a combining form: slave) (frequently colloquial for servomotor or servosystem)
servoaccelerometer (n)
servoamplidyne (n)
servoamplifier (n)
servoassembly (n)
servobrake (n)
servocarrier (n)
servocontroller (n)
servodrive (n)
servoerror (n)
servofeed (n)
servolink (n)
servoloop (n, a)
servomechanism (n)
servomotor (n)
servomultiplier (n)
servonetwork (n)
servooutput (n)
servosignal (n)
servosystem (n)
setback (n, a)
set back (v)
setpoint (n) (as related to control systems)
set point (n) (medical and sports term)
set-top box (n)
set up (v)
setup (n, a)
shared-aperture (a)
short circuit (n)
short-circuit (a, v)
short-term (a)
shortwave (n, a)
shoot-through (n, a)
shoot through (v)
shunt-feedback common-emitter amplifier (n)

shutdown (n, a)
shut down (v)
shutoff (n, a)
shut off (v)
sidelobe (n, a)
side-looking (a)
siemens (n) (unit of measure)
signaling (n, a, v)
signal-to-noise ratio (n)
signoff (n, a)
sign off (v)
silicon (n) (an element)
silicone (n) (an organic compound)
silkscreen (n, a)
silk screen (v)
sine function (n)
sine wave (n)
sine-wave (a)
single-access RAM (n)
single-phrase (a)
single-pole single-throw (a)
sizable (a)
slip-on (n, a)
slip on (v)
slotted (a)
small-scale (a)
smart-idle mode (n)
smartphone (n)
soft copy (n)
soft start (n)
soft-start (a)
solid-state (a)
spatial (a) (not spacial)
speakerphone (n)
special-purpose (a)
spectrum (n, s), spectra or spectrums (n, pl)
spin down (v)

spin-down (n, a)
spinlock (n)
spin off (v)
spin-off (n, a)
spin up (v)
spin-up (n, a)
spot check (n)
spot-check (a, v)
spread-spectrum (a)
square wave (n)
square-wave (a)
stackup (n)
stack up (v)
stand-alone (n, a)
standby (n, a)
stand by (v)
standstill (n)
stand still (v)
standing-wave ratio (n)
standoff (n, a)
stand off (v)
start bit (n)
start-bit (a)
start up (v)
start-up (n, a)
stateful (a) (opposite of stateless)
state machine (n)
state-machine (a)
state of the art (n)
state-of-the-art (a)
state of charge (n)
state-of-charge (adj)
state of conversion
state-of-conversion
step down (v)
step-down (n, a)
step up (v)

step-up (n, a)
stop band (n)
stop-band (a)
stop bit (n)
stop-bit (a)
StrataFlash (n)
streamline (v)
streamlined (a)
subaddress (n)
subassembly (n)
subband (n)
subblocks (n)
subchip (n)
subcommand (n)
subfield (n)
subharmonic (n, a)
submodule (n)
subpriority (n, a)
substrate (n)
subsecond (n)
subsection (n)
subsystem (n)
subtractor (n)
subvector (n)
superset (n)
surface-acoustic-wave (a)
surface-mount (a)
switchover (n, a)
sync (n, a, v)
sync-frame pulse (n)
sync-frame signal (n)
synchro (n) (gen: synchrosystem)
synchronism (n)
synchronization (n)
synchronize (v)
synthesizer (n) (not synth)
synchronous (a; see abbr sync)

subcircuit vs sub-circuit latest use (TIDT387) I used subcircuit (without the hyphen)

sub-layer (sublayer, though seemingly accurate, is not in merriman).

multipanel (not multi-panel - internet dic. and google search)

system-level (a)

33.20 T

2-D (a) (abbr for two-dimensional)

2's complement (n), 2's-complement (a)

3D (a) (abbr for three-dimensional)

3-state (a only, never v) (see the preferred tri-state)

tail light (n)

takeaway (n) (as in “the key takeaway of the survey”)

takedown (n, a)

take down (v)

takeoff (n, a)

take off (v)

takeout (n, a)

take out (v)

takeover (n, a)

take over (v)

take-up (n)

take up (v)

Tchebysheff (n) (see Chebyshev)

test bench (n)

test-bench (a)

test point (n)

test-point (a)

Texas Instruments Incorporated (n) (see TI; no punctuation; never abbreviate Incorporated; never hyphenate)

thermoanalysis (n)

thermoelectric (a)

thick-film (a)

thin-film (a)

third-overtone crystal (n)

through-hole (a)

throughput (n, a)

throw-off (n)

throw off (v)

TI (n) (this is the acceptable form of Texas Instruments Incorporated in text)

TI's (n, possessive)

Tler (s), Tlers (pl) (same treatment in text and capitalized titles)

time base (n)

time-base (a)
time-code (a)
time constant (n)
time-constant (a)
time frame (n)
time-frame (a)
time lapse (n)
time-lapse (a)
timeline (n)
time-multiplexing (a)
timeout (n, a)
time out (v)
time-sharing (n, v)
timesaving (a)
time slot (n)
time span (n)
time-span (a)
timestamp (n, v)
time-tested (a)
toolchain (n)
toolkit (n)
top-level (a)
touchscreen (n, a)
toward (preposition) (not towards)
trade-off (n)
transceiver (n)
transconductance (n)
transistor (n)
transmitter (n)
traveling-wave tube (n)
tri-state (a only, never n or v) (pref, not 3-state)
tunable (a)
turnaround (n)
turn around (v)
turnkey (n, a)
turn-off (n,a)
turn off (v)

turn-on (n, a)

turn on (v)

twisted pair (n)

twisted-pair (a)

two-dimensional (a)

33.21 U

U-Boot (n, a)

ultra-high (a)

ultra-high frequency (n)

ultra-high-frequency (a)

ultra-low (a)

ultra-low power (n)

ultra-low-power (a)

ultraviolet (a)

undercurrent (n, a)

underrun (n, v)

undershoot (n, v)

undervoltage (n, a)

underway (a, adv)

un-ionized (a)

upconversion (n, a)

upconvert (v)

upconverter (n, a)

uptime (n)

up-to-date (a)

usable (a)

use case (n)

use-case (a)

user interface (n)

33.22 V

valence electron (n)

var (n) (treated as a word for volt-ampere reactive)

variable-frequency oscillator (n)

versus (preposition) (vs is pref in graph titles, not vs.)

very-high-frequency (a)

very-high-speed (a)

very-large-scale (a)

very-low-frequency (a)
vestigial sideband (n)
vice versa (adv)
video band (n)
videocassette (n)
volt-ampere (n)
voltmeter (n) (instrument for measuring difference of potential between points of an electrical circuit)

33.23 W

wait pin (n)
wait state (n)
wait-state (a)
wakeup (n)
wake up (v)
wake-up (a)
walk-through (n)
warmup (n)
warm up (v)
warmup (a)
washout (n, a)
wash out (v)
watchdog (n, a)
watchpoint (n)
waveform (n, a)
waveguide (n, a)
wavelength (n, a)
wave train (n)
wave trap (n)
wear-out (a)
wear out (v)
Web (n; see also World Wide Web)
webcam (n, v)
webcast (n, v)
weber (n) (unit of measure)
webmaster (n)
webpage (n)
website (n)
well-adjusted (a)

well-known (a)
well-organized (a)
well-regulated (a)
whitelist (n)
wide-angle (a)
wideband (a)
wild card (n); wild-card (a)
wire-band (a)
wire-bond (a, v)
word step (n)
work-hour (n)
workaround (n)
workflow (n)
work function (n)
World Wide Web (n)
worldwide (a)
worst case (n)
worst-case (a)
wraparound (n, a)
wrap around (v)
writeback (n)
write back (v)
write-only (n, a)
write-up (n, a)

33.24 X

x-axis (n, a) (*italic x* pref only if used throughout [that is, text, math, illustrations; capital X is allowed])
x-band (n, a)
x coordinate (n)
x-coordinate (a)
XOR (a; must use the words *XOR gate*)
XOR (n, v; an operation)
XORed (v)
XNOR (a; must use the words *XNOR gate*)
XNOR (n, v; an operation)
X-ray (n, a, v)

33.25 Y

y-axis (n, a) (dist x-axis)

y coordinate (n)

y-coordinate (a)

year-end (n, a) or year's end (*year-end results or at year's end*)

year-round (a)

33.26 Z

Zener (n, a)

zero-crossing (n, a)

zeroed (v)

zero-extend (v)

zeroing (v)

zeroize (n)

zeroization (n)

zero-padded (v)

zero-padding (n, a)

zero-point energy (n)

zeros (n, pl)

34 Revision History

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

Changes from Revision H (June 2022) to Revision I (February 2024) Page

• Deleted all spaces and hyphens between numbers and abbreviated units of measurements.....	1
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Changes from Revision G (December 2019) to Revision H (June 2022) Page

• Changed <i>Digital Documentation</i> to <i>Technical Documentation group</i>	1
• Changed instances of <i>application report</i> to <i>application note</i> throughout	1
• Added link to the <i>Standards & Guidelines</i> page on Confluence.....	4
• Corrected the preferred resources list.....	4
• Replaced reference to <i>hashtag</i> and <i>pound sign</i> to <i>octothorpe</i>	6
• Replaced approximately equal symbol \approx with \cong	6
• Removed a conditional verb in second paragraph.	7
• Added footnote regarding our commitment to using inclusive technical terminology.....	10
• Removed conditional verb from first bulleted list item.....	18
• Added <i>Adopting Inclusive Terminology</i> section	21
• Clarified description of <i>CamelCase</i>	23
• Corrected typographic error from <i>kB (kilobit)</i> to <i>Kb (kilobit)</i>	23
• Removed <i>master</i> and <i>slave</i> from <i>Appropriate Descriptive Nouns</i> table.....	23
• Changed <i>DD</i> to <i>Technical Documentation group</i>	24
• Removed <i>Copyright Notice</i> section.....	29
• Clarified em dash usage description.....	29
• Clarified en dash usage description.....	29
• Added clarification regarding the scope of the content of Section 13	32
• Moved <i>acceptable convention in explicit procedural material and instructions</i> to Section 13	32
• Adjusted test to comply with inclusive language guidelines in <i>Jargon and Slang</i> section.....	32
• Deleted <i>Glossary</i> section.....	32
• Updated <i>EXCEPTION</i> note in Section 18.3	39
• Removed suggestion to use thin space instead of commas to separate thousands in a digit larger than 3 figures in Section 18.3	39
• Updated <i>Reference</i> section.....	43
• Added <i>Internal cross-references</i> section.....	43
• Added <i>Cross-Reference Usage in Data Sheets</i> section.....	44
• Updated Section 22.2	44
• Clarified examples in Table 23-3	46
• Clarified content and examples in Section 25	49
• Updated instructions on XML trademark placement with a link to the Confluence site.....	50
• Changed <i>Using Second Person Point of View</i> to <i>Using Second Person Perspective</i> throughout the section.....	52
• Clarified example sentences in <i>Using Second Person Perspective</i> section.....	52
• Changed title to <i>Using Second Person Pronouns</i>	52
• Clarified the <i>Value</i> list items in Section 30	54
• Clarified the examples in Table 30-1	54
• Clarified examples in Table 31-2	55
• Clarified guidelines for <i>Comprise</i> , <i>compose</i> , <i>include</i>	57
• Removed trademark registration symbol from <i>Flash</i> listing in <i>Word List</i>	77

Changes from April 2, 2018 to December 8, 2019 (from Revision F () to Revision G ())	Page
• Added <i>mid-2017</i> and <i>mid-August</i> to the list of valid capitalization in hyphenated words	26
• Added changing the phrase <i>TI Design</i> from <i>reference design</i> to <i>design guide</i>	55
• Added the GaN definition.....	79
• Changed lowercase internet of things to Internet of Things.....	81
• Deleted the word "lowercase" as an unneeded entry.....	82
• Changed MegaModule to Megamodule.....	84
• Changed mixup to mix-up.....	84
• Added multiplex as a verb instead of mux'ed or muxed.....	84
• Section 33.14 : Changed the italicized <i>n</i> to nth.....	86
• Deleted Section 33.15 the hyphenated version of offline; deleted ones complement and one's complement in deference to 1's complement; deleted the hyphenated version of online.; deleted the word oral.....	87
• Changed plaintext to plain text.....	89
• Hyphenated pre-exist.....	89
• Deleted the hyphen in printed circuit board	89
• Deleted the hyphen in printed wiring board.....	89
• Deleted pulse width, as it is no longer used. Added pulse duration as the acceptable term.....	89
• Added roll-over as an adjective.....	92
• Deleted schedular as an adjective.....	94
• Added SerDes; do not use SERDES.....	94
• Added State of charge and state-of-charge to the word list.....	94
• Added State of conversion and state-of-conversion to the word list.....	94
• Deleted "gen" preceding synchrosystem.....	94
• Deleted throughput because of limited usage; also removed throughout.....	99
• Deleted twos (pl of two). Usage is now just 2"s.....	99
• Removed the hyphen between 3 and D; it is now 3D.....	99
• Removed the hyphen in takeout as an adjective and noun; added take out as a verb.....	99
• Deleted the space between time and line. It is now timeline.....	99
• Deleted the hyphen from time-out as a noun and adjective. It is now timeout.....	99
• Changed turnoff as an adjective, to turn-off.....	99
• Changed turn on as an adjective to turn-on.....	99
• Combined under and way into a single word.....	101
• Changed warm-up to warmup; kept warmp as an adjective.....	102
• Changed Web to web. World Wide Web remains as-is.....	102
• Changed from Website to website.....	102
• Changed wildcard to wild card when used as a noun; added wild-card as an adjective.....	102
• Deleted X-Loader.....	103
• Changed x-ray to Xray.....	103
• Changed yearend to year's end or year-end.....	103

- hot swap vs hotswap (first see what the data sheet has (if applicable), then see the release blurb Word file)
- two

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- solution
- ensure (TI Legal)
- guarantee (TI Legal)
- ideal
- 'in order to'
- optimal, optimally, perfect, superior
- Latin abbreviations (Global translation rules)
- It, it, its, These, They, used as ambiguous pronouns
- will, would, could, should, may, might, have been (passive voice - Technical Documents are written in *active* voice)

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- solution
- ensure (TI Legal)
- guarantee (TI Legal)
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- optimal, optimally, perfect, superior
- Latin abbreviations (Global translation rules)
- It, it, its, these, they, their, them used as ambiguous pronouns
- will, would, could, should, may, might, have been (passive voice - Technical Documents are written in *active* voice)
- contractions (don't, isn't)
- possessive form of inanimate objects (MSPM0's, OPA180's)
- make word plural using (s) at the end of the word
- you (Do not use the second person you unless the sentence cannot be reworded to avoid using you)

Also, due to automated software global translation rules, do not use the following:

- ~ (tilde character)
- &
- / (slash used as a separator)

MSPM0's,
the word
unless the
ing you)

translation rules,

title:
company names
s. Do we need to
ation on our

hing a PDF with
these rules:
n "users"
le
possible
or "it" to make it

explicit what the subject of the sentence is

- Do not use the modal verbs "should," "would," and "could"