LaTeX documentation demonstrator template

Revision History

The following table shows the revision history for this document. But also it shows how a full-width table may look like.

Date	Version	Author	Revision
30.12.2023	1.2	Dmitry Eliseev	Updated figures caption style: margin added and label's font is changed to bold italic.
09.05.2021	1.1	Dmitry Eliseev	Included a section with a code snippet example. Added bit-field description.
20.04.2021	1.0	Dmitry Eliseev	The LaTeX template for your datasheets.

General Description

This document shows possibilities of LaTeX for creating datasheets. The most suitable use-case of this template is a relatively short datasheet of up to about 30 pages. Although this document shows some LaTeX commands, it cannot be used as a LaTeX tutorial. There are plenty of LaTeX tutorials on internet. See for example [1]. This template was originally composed by Dmitry Eliseev (@smartfpga.de) and is evolving as a Git-project here: `https://github.com/smartfpga/Latex-Datasheet-Template.git` [2].

Insert figures

The best practice to keep your figures with the tex-file is putting them into `/fig` directory. How your illustration may look like in a datasheet is shown in Figure 1.

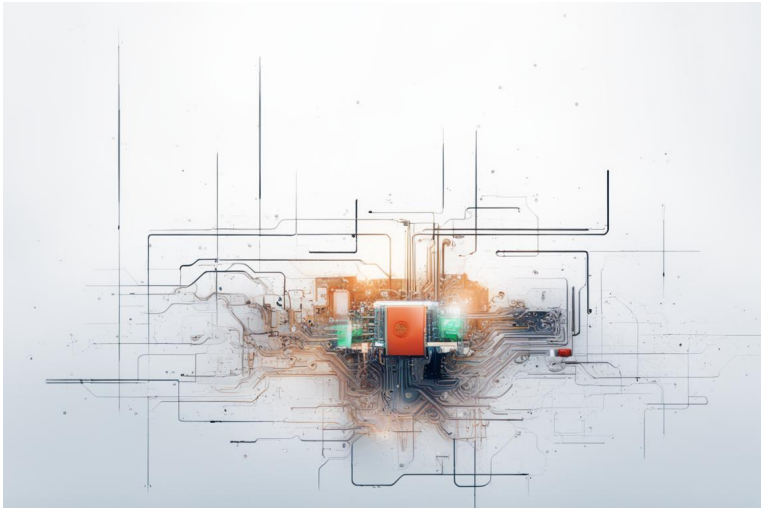

Figure 1: This is a caption of an example figure. An AI-generated abstract figure was used for the illustrative purpose.

Sections and subsections

Document hierarchy

Like in all LaTeX documents you can introduce hierarchy in your datasheets. For most cases two hierarchical levels are enough. In order to introduce them in your document use the `\section` and `\subsection` commands.

Code entries

If insertion of a code snippet with a monospaced font is needed, use the verbatim sections and include your code between `\begin{verbatim}` and `\end{verbatim}` commands. Here is an example:

```
COMPONENT yet_another_VHDL_component
  GENERIC(
    top_clk_freq        : INTEGER := 40_000_000;
    i2_clk_freq         : INTEGER := 100_000;
    Polling_freq        : INTEGER := 4);
  PORT (
    sysclk              : in STD_LOGIC;
    reset_n             : in STD_LOGIC;
    data_regs           : out t_data_regs;
    control_reg         : in std_logic_vector;
    i2c_sda             : inout STD_LOGIC;
    i2c_scl             : inout STD_LOGIC
    );
  END COMPONENT;
```

Bit description in registers

In order to describe bits or bit-fields in registers you may use simple tables. An example is shown in Table 1.

Table 1: Bit description of an example register

Bit#	Name	Active state	Description
7..4	-	-	Reserved bits
3	i2c_error	high	The flag goes high if an ACK error was detected. To unset this error flag user must run the configuration procedure again by toggling the respective bit of the control register.
2	data_regs_refreshed	high	This bit is toggled for one `sysclk` period, indicating that the ADC data registers were just refreshed. The user should use this signal when taking data from the chXX registers.
1	config_done	high	This bit goes high after the configuration procedure of the ADC is accomplished. The bit goes low if an I2C acknowledgement error occurs.
0	ADC_polling_mode	high	Reflects whether the polling is currently switched ON (1) or OFF (0).

References

[1] Online tutorial: Learn LaTeX in 30 minutes. URL:
https://de.overleaf.com/learn/latex/Learn_LaTeX_in_30_minutes

[2] Github Project: LaTeX Documentation Template. URL:
https://github.com/smartfpga/Latex-Datasheet-Template.git