

POWERLINK: Quick Start Guide



POWERLINK is the standard for high-performance real-time industrial communication in machines and automation systems. The technology is compliant with IEEE 802.3 Ethernet, free of patents and completely open source with BSD licensing. The Ethernet POWERLINK Standardization Group (**EPNG**) is the independent user group and administrates the technology (<http://www.ethernet-powerlink.org>).

Following resources help you to find a quick start to the POWERLINK technology:

1.) POWERLINK's technical specification

<http://www.ethernet-powerlink.org/en/downloads/technical-documents/>

and comparison of Industrial Ethernet field busses in general

<http://www.ethernet-powerlink.org/en/downloads/industrial-ethernet-facts/>

2.) openPOWERLINK stack on SourceForge under BSD license

<http://openpowerlink.sourceforge.net/>

Technical questions may be put into the SourceForge forum; they will be answered by the developers.

3.) openPOWERLINK documentation and compile instructions

http://openpowerlink.sourceforge.net/doc/2.3/2.3.1/d5/df7/page_build.html

The openPOWERLINK stack is fully scalable in hardware (FPGA, MCU, ARM, x86) as well as in software (no-OS, Windows, Linux). A real-time OS reduces the jitter, but is not required for operation.

4.) real-time Linux requires the RT-Preempt patch, explanation is found on the OSADL page

<https://www.osadl.org/Realtime-Linux.projects-realtime-linux.0.html>

and compatible Linux kernels are listed here

<https://www.kernel.org/pub/linux/kernel/projects/rt/>

5.) openCONFIGURATOR for configuration of POWERLINK networks (Eclipse plugin)

<https://sourceforge.net/projects/openconf/>

Please note, that it's not possible to write an application in this environment (C/C++/IEC 61131).

Video Tutorials on YouTube:

- Part 1: <https://www.youtube.com/watch?v=udcX1Xe-A94> >> Install, create and build a project with 1MN & 2CN

- Part 2: <https://www.youtube.com/watch?v=eVCg0aAwHIM> >> Adding a RMN and build the project

- Part 3: <https://www.youtube.com/watch?v=HTLoicG8CN4> >> Explaining the important mapping parameters

7.) openPOWERLINK on Raspberry Pi 2 step-by-step tutorial by Kalycito

<https://www.kalycito.com/index.php/references/119-how-to-powerlink-on-raspberry-pi-2>

Please note, that the Raspberry Pi 2 is not eligible for productive systems, because the Ethernet port is just an emulated USB interface; therefore, high latency is inevitable. However, it's fine for experiments and understanding the principle of operation.

8.) more openPOWERLINK Tutorials

<http://www.ethernet-powerlink.org/en/powerlink/tutorials/>

- Industrial Ethernet on XILINX Zynq

- Industrial Ethernet on Altera Cyclone V SoC

- Open Source Industrial Ethernet with Controller Redundancy

9.) POWERLINK for CODESYS plugin by BE.services

http://www.be-services.net/fileadmin/BEservices/Products/BE.Powerlink_online_single.pdf

and the plugin will be available in the CODESYS Store in Q4/2016 <http://store.codesys.com/>

Training services can also be found at <http://www.be-services.net/education/overview.html>

10.) POWERLINK on LinkedIn

Join the community of developers and users via <https://www.linkedin.com/groups/2331103>

11.) European Industrial Ethernet Award

The task of this student contest is to develop a research project with relevance to the IIoT utilizing POWERLINK. Visit <http://www.ethernet-powerlink.org/en/award> and join our LinkedIn group www.ethernet-powerlink.org/en/linkedin to learn how to participate.

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