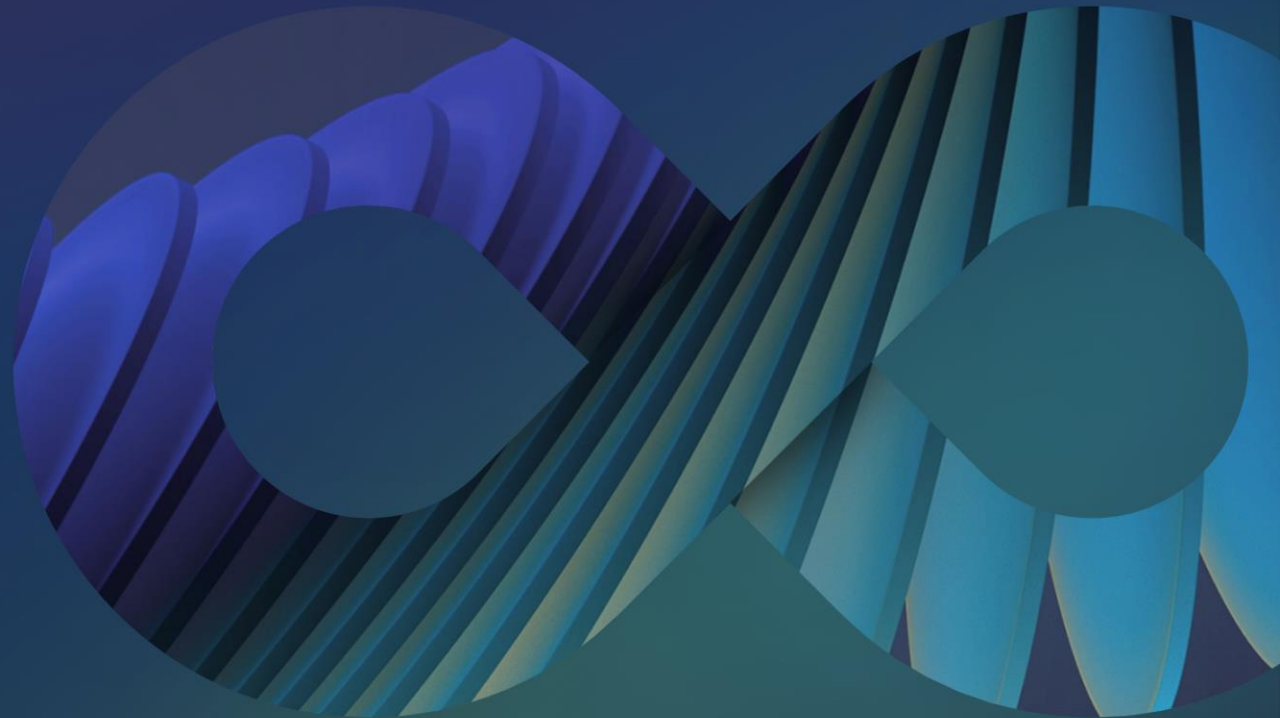


Open Source in Industry

Lecture: Digital Sustainability
University of Bern, Switzerland

27th of November 2024



As a technology
company we do...



We commute in cars designed,
with **Siemens software...**

... built in factories running on
Siemens automation ...



... and charged by a **Siemens
smart grid.**



We work in smart buildings that **promote our health and safety**...

... that use energy with **maximum efficiency** ...



... and connect the **physical** and the **digital** workplace.



We book our train tickets with
Siemens software ...

... to travel on **trains**
made by **Siemens** ...



... operated with Siemens
infrastructure technology.

Our products consist of
0% - 99%
Open Source

Maturity for Open Source Adoption

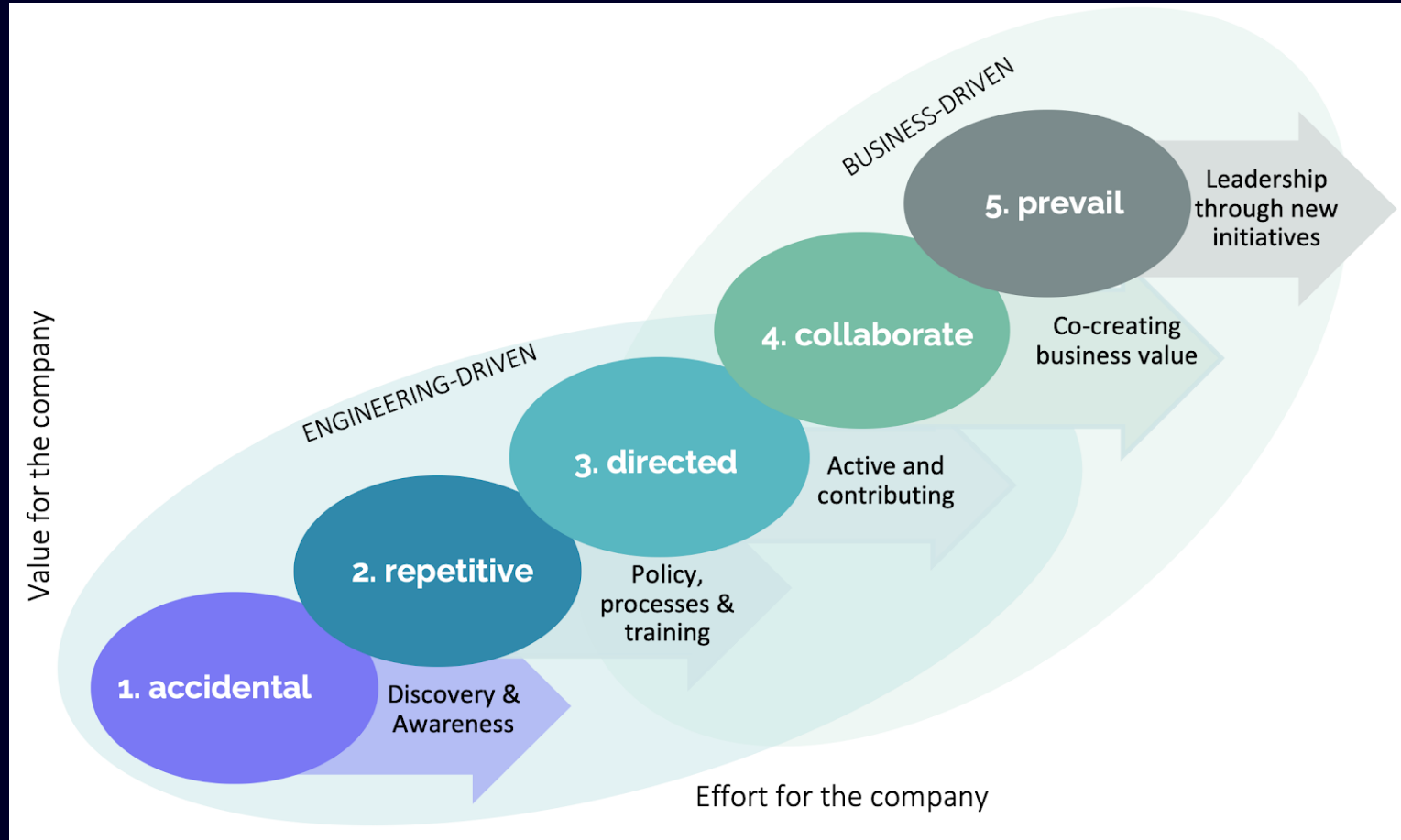


Image Source: <https://debricked.com/blog/reaching-higher-levels-open-source-maturity/>

Why? Do more with the same budget, attract talents, innovate faster, reduce maintenance efforts and have fun!

Upstream first!

- Contribute bug fixes or features back to the community!
- It's a **give and take!**

Otherwise:

- Short-term fixes/patches
- No review by the maintainers
- Very expensive mid- and long-term solutions, porting features is heavy work that could take months
- No chance to deliver security fixes within a timely manner
- Difficulties to benefit from new features or bug fixes

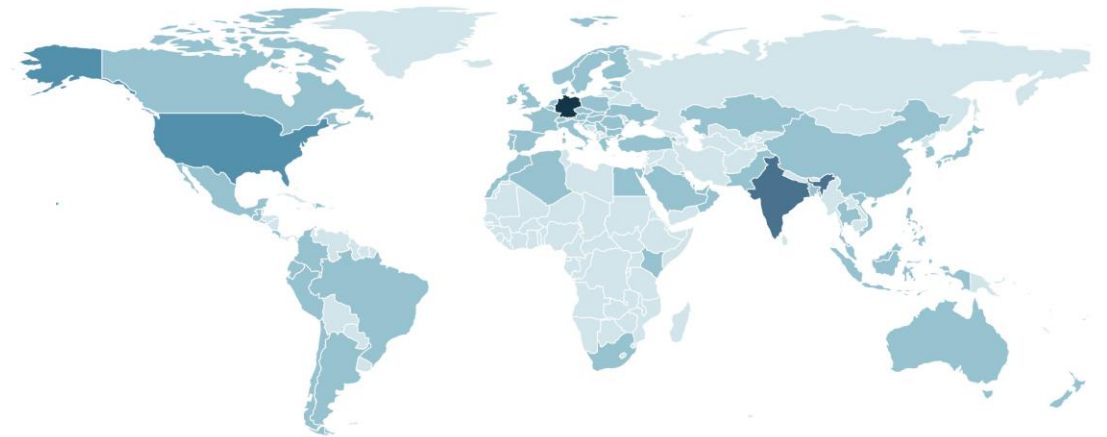
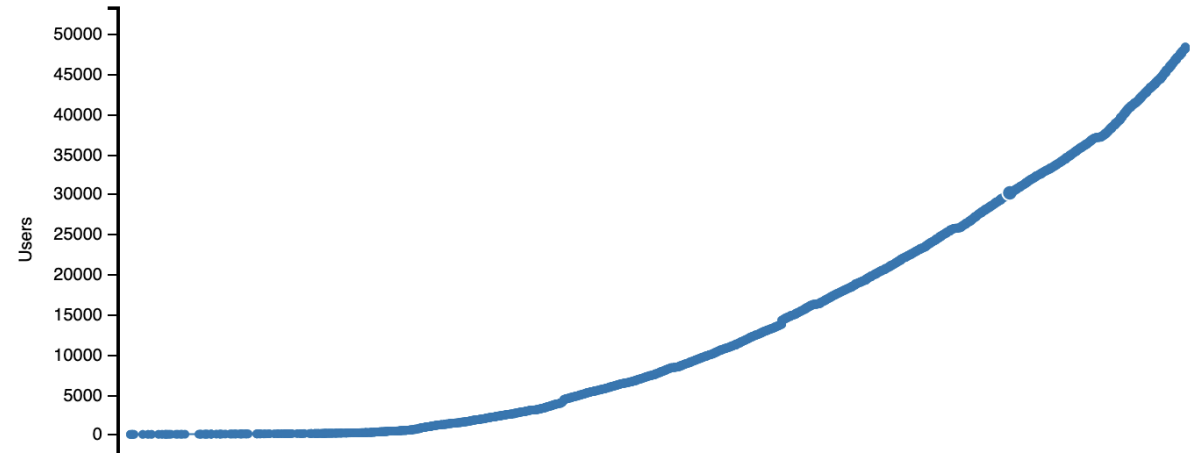
Establish an Open Source Culture @ Siemens

code.siemens.com - DevOps at scale

Social coding platform to collaborate on code within minutes.


- > **300k** builds/day
- > **78k** users, > **79** countries
- > **30M** API requests/day
- > **9200** hosted websites
- **0 €** license fees → Open Source
- **No classic** help desk → **community**

Thousands of **our** products and solutions are developed and deployed using code.siemens.com.




For developers, from developers


The internal brand code.siemens.com started with one “like” 👍

 **Roger Meier**
Attached is the variant analysis we did for CCP@BT, so you can see our goals we had in mind.

Key Requirements:
Main focus for this evaluation is managing source code for Linux Kernel and U-boot and collaborative development. Most of our core components such as Linux, U-Boot and OpenEmbedded are using git as their source control system. Otherwise we will not be able to manage history and code changes well. Social coding platforms do provide an additional layer on top of git to simplify forking, merging, pull requests, etc. Precondition is to use ATOS infrastructure with a provided "must use" Red Hat Enterprise Linux. It would be preferred to use a Siemens solution, e.g. <https://code.siemens.com/>. However, I was unable to wait for this. I'm sure we will have this one day and I will say "we are a state-of-the-art software company".

 [BT-CCP-S-0007_DAR_Configuration_Management.pdf](#)

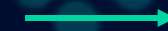
Jun 11, 2014 at 11:45 am ★ 1 person likes this

 **Jaime R. Garza**
[@RogerMeier6](#) : Thanx! I just registered code.siemens.com, so if the idea gets central sponsorship,

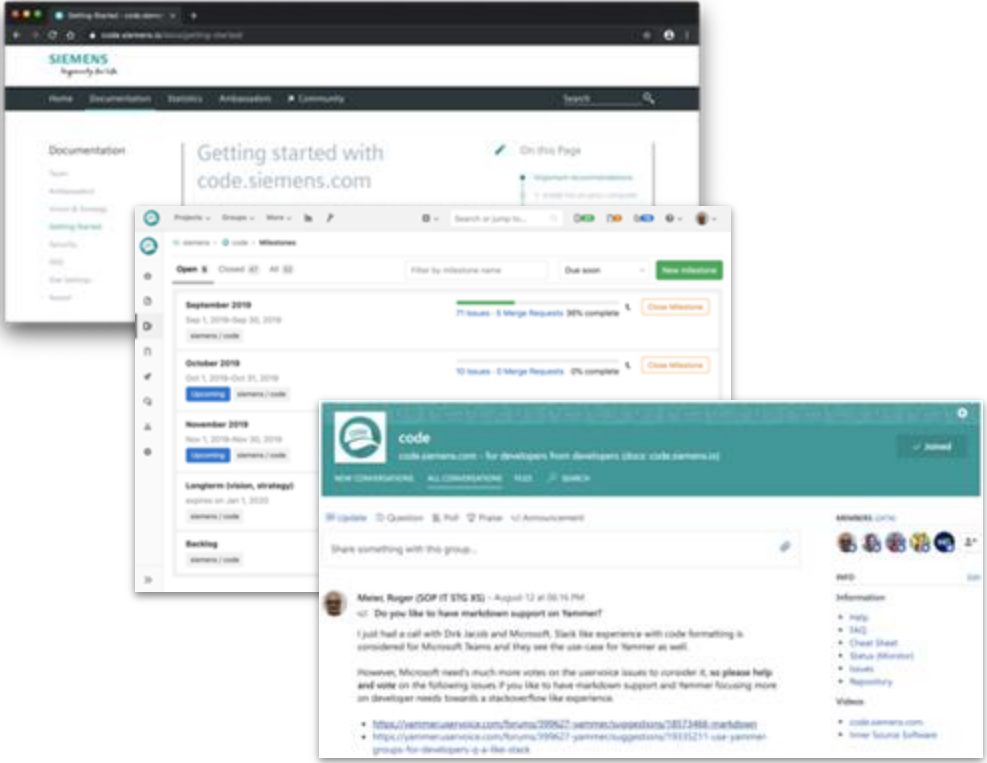
Jun 11, 2014 at 12:00 pm Unlike ★ 4 people like this

- A recognizable name is important
- Establish an ambassador circle
- Community identifies itself with brand
- Known people behind the brand

We do have stickers...



No Help Desk

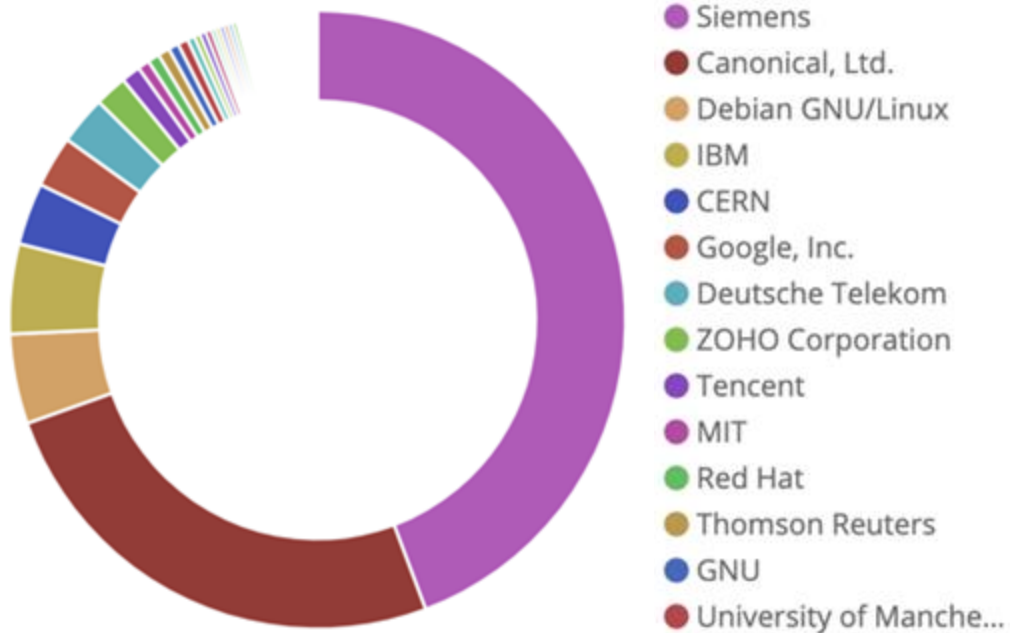


For developers, From developers

- Documentation Portal
- Issue tracker
- internal Social Network
- “Help Yourself”

Great engagement within the community

Upstream First - No Patches

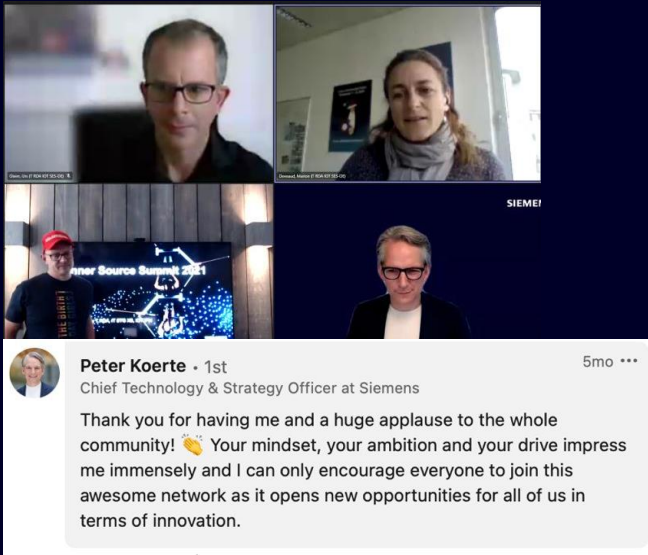


- We deploy on a **regular basis**
- We only **deploy from upstream**
- **We extend** what we're using
- **Contributing to the eco-system** around GitLab

> 350 merge requests to GitLab
12 elections as GitLab MVP (most valuable person) within the crew

Inner Source - Apply the Open Source principles in-house

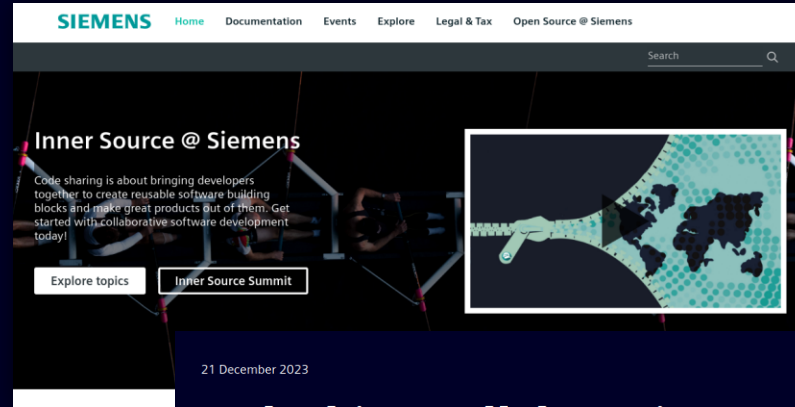
Internal: Yearly summit



- Provide a stage for projects
- 4th edition in 2024

<https://blog.siemens.com/space/developers/>

Internal Portal with insights

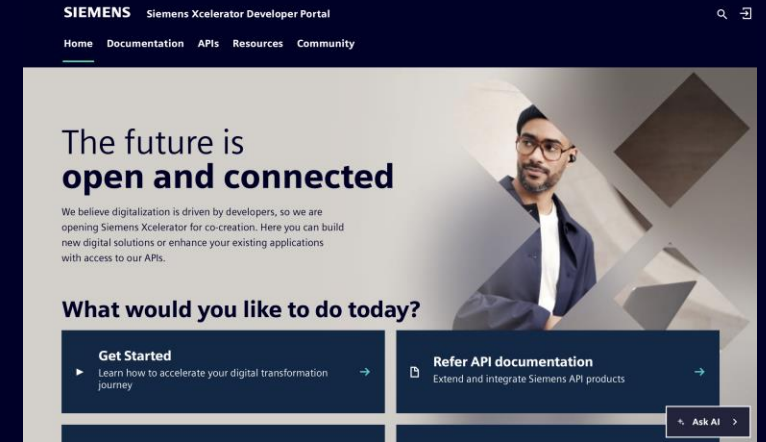


Unlocking collaboration: how Inner Source transformed the way we develop software at Siemens

8 years ago, Siemens embarked on its Inner Source journey, marked by the establishment of a code sharing platform based on the Open Source software [GitLab](#). This year, we organized the 3rd edition of our Inner Source Summit, an internal event targeting developers and DevOps engineers, fostering exchange of information, networking and collaboration beyond organizational boundaries.

Some examples:

- developer.siemens.com



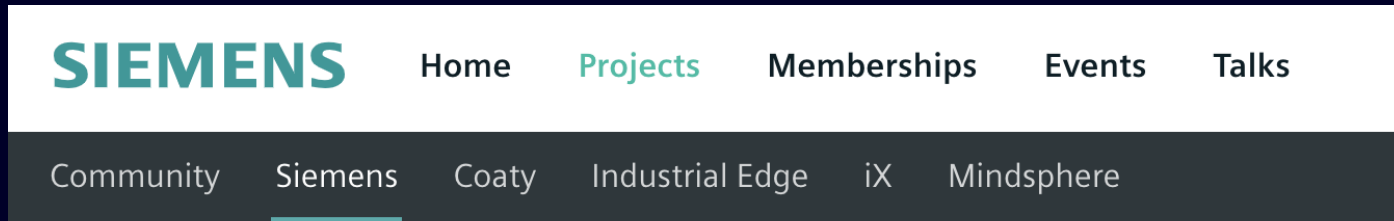
- Some components: >1.5k re-uses
- Managed Linux client
- Common UI components

If you're able to collaborate in-house, then you are ready for Open Source. Get experienced Open Source developers to accelerate.

Siemens Open Source activities

opensource.siemens.com

First, we started with a very basic event web site.
Now we have all our Open Source-related topics on one portal.

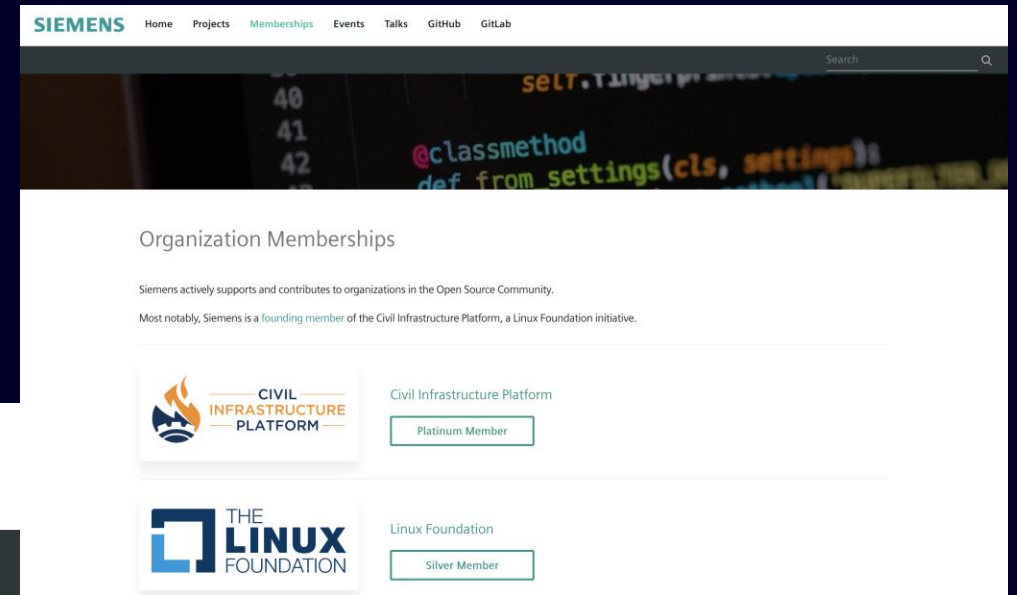


Open Source by Siemens

You'll find a growing list of projects published by Siemens that you can explore below.

Head over to github.com/siemens for a more complete list!

On top of our core GitHub organization, you'll find projects hosted at some of our product-specific organizations (for example github.com/mindsphere and github.com/industrial-edge) and at gitlab.com/siemens.



20 September 2023

How Siemens supports Open Source development

Siemens has been committed to Open Source development for over a decade. We have published and contributed to numerous projects. In addition to that we recently started a new initiative to support Open Source maintainers financially. Dive into this article as we share some insights on our journey.



The Siemens Open Source Manifesto

Inspired by the *Mercedes-Benz FOSS Manifesto*, now online at <https://opensource.siemens.com/manifesto/>

Company Principles

- Encourage Open Source
- Facilitate Participation
- Grow Through Exposure
- Promote Visibility

Employee Principles

- Prefer Open Source
- Contribute
- Foster Teamwork
- Be Responsible Citizens

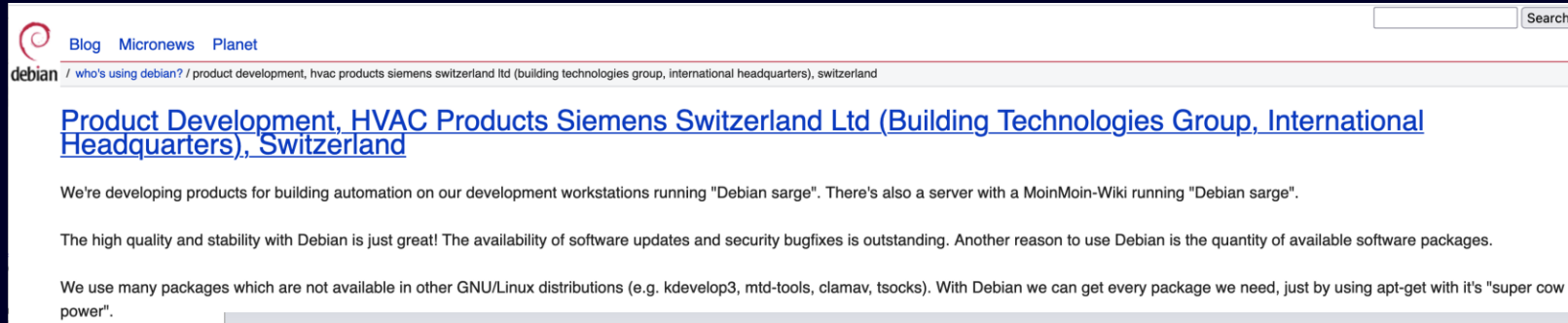


Blog Post: <https://blog.siemens.com/2023/05/open-source-manifesto/>

Special Thanks to:

- Hanna Hennig (Chief Information Officer) and Peter Körte (Chief Technology Officer and Chief Strategy Officer) for supporting us!
- Florian Greinacher, Nejc Habjan and Oliver Fendt for driving the topic in-house!
- All the signatories from C-Level to apprentice all on the same list, we act as a team!

Siemens ❤️ Debian



debian / Blog Micronews Planet

Search

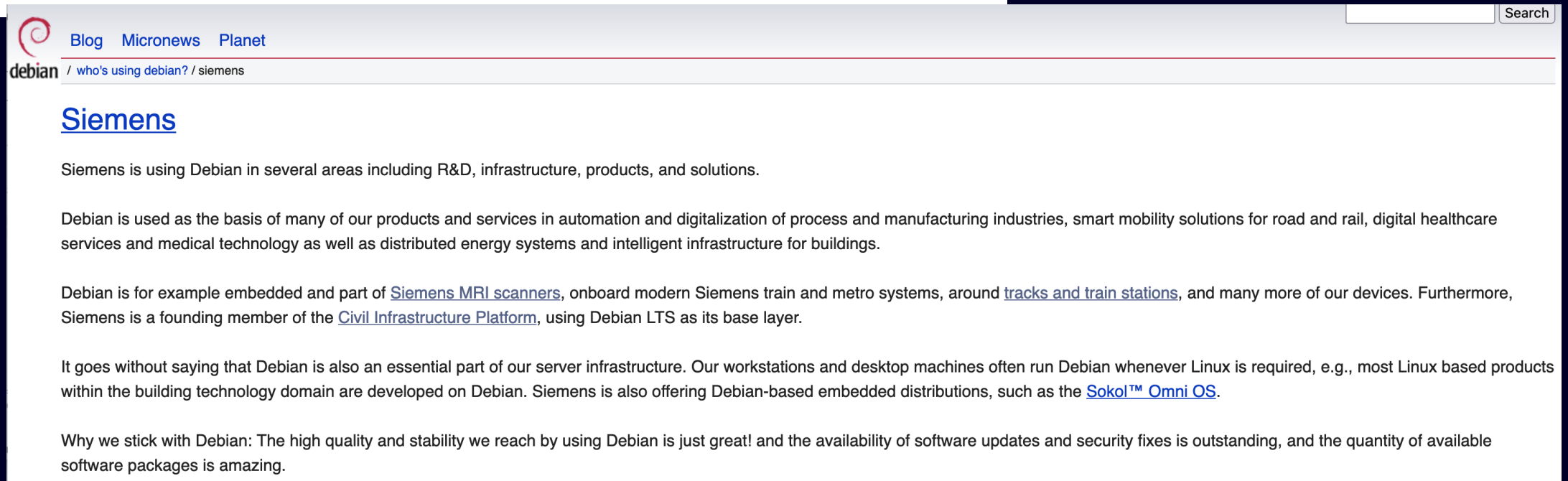
debian / who's using debian? / product development, hvac products siemens switzerland ltd (building technologies group, international headquarters), switzerland

[Product Development, HVAC Products Siemens Switzerland Ltd \(Building Technologies Group, International Headquarters\), Switzerland](#)

We're developing products for building automation on our development workstations running "Debian sarge". There's also a server with a MoinMoin-Wiki running "Debian sarge".

The high quality and stability with Debian is just great! The availability of software updates and security bugfixes is outstanding. Another reason to use Debian is the quantity of available software packages.

We use many packages which are not available in other GNU/Linux distributions (e.g. kdevelop3, mtd-tools, clamav, tsocks). With Debian we can get every package we need, just by using apt-get with it's "super cow power".



debian / Blog Micronews Planet

Search

debian / who's using debian? / siemens

[Siemens](#)

Siemens is using Debian in several areas including R&D, infrastructure, products, and solutions.

Debian is used as the basis of many of our products and services in automation and digitalization of process and manufacturing industries, smart mobility solutions for road and rail, digital healthcare services and medical technology as well as distributed energy systems and intelligent infrastructure for buildings.

Debian is for example embedded and part of [Siemens MRI scanners](#), onboard modern Siemens train and metro systems, around [tracks and train stations](#), and many more of our devices. Furthermore, Siemens is a founding member of the [Civil Infrastructure Platform](#), using Debian LTS as its base layer.

It goes without saying that Debian is also an essential part of our server infrastructure. Our workstations and desktop machines often run Debian whenever Linux is required, e.g., most Linux based products within the building technology domain are developed on Debian. Siemens is also offering Debian-based embedded distributions, such as the [Sokol™ Omni OS](#).

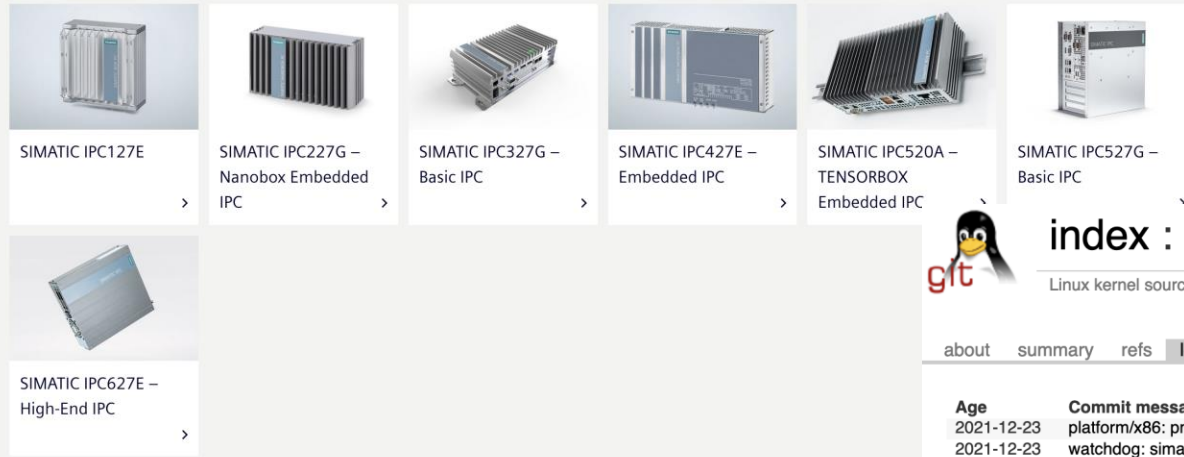
Why we stick with Debian: The high quality and stability we reach by using Debian is just great! and the availability of software updates and security fixes is outstanding, and the quantity of available software packages is amazing.

Growing number of upstream contributions: e.g., SIMATIC drivers within Linux Kernel

Compact industrial PCs from Siemens – for installation close to the process

Our rugged, compact SIMATIC Box PCs offer you high performance in a small space. They are rugged and designed for an extended temperature range, allowing them to be installed directly in the control cabinet – the ideal solution for process and machine-level data processing or visualization.

- > SIMATIC Box PCs at a glance
- > SIMATIC IPC 6/8 E series at a glance



phoronix

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armdesigner.com Visit Site >

Siemens Working To Upstream More Linux Drivers For Their Industrial PCs

Written by Michael Larabel in Hardware on 16 March 2021 at 06:18 AM EDT. 6 Comments

Siemens has recently been engaging directly with the upstream Linux kernel developers in aiming to mainline various drivers for benefiting their industrial PC platforms.

For Siemens industrial PCs like the SIMATIC IPC line-up, the German industrial giant is looking to begin upstreaming more of their drivers. The initial area includes watchdog and LED support for these x86-based industrial PCs while more platform drivers and expanded device support is expected to come with time. They do have more code internally left to be sanitized and published around hardware monitoring and other features.

index : kernel/git/torvalds/linux.git

Linux kernel source tree

about summary refs log tree commit diff stats

log msg simatic search

Age	Commit message (Expand)	Author	Files	Lines
2021-12-23	platform/x86: pmc_atom: improve critclk_systems matching for Siemens PCs	Henning Schild	1	-21/+33
2021-12-23	watchdog: simatic-ipc-wdt: add new driver for Siemens Industrial PCs	Henning Schild	3	-0/+240
2021-12-23	leds: simatic-ipc-leds: add new driver for Siemens Industrial PCs	Henning Schild	5	-0/+221
2021-12-23	platform/x86: simatic-ipc: add main driver for Siemens devices	Henning Schild	5	-0/+292
2021-07-01	igc: Fix use-after-free error during reset	Vinicius Costa Gomes	1	-0/+2
2021-04-26	Merge tag 'arm-dt-5.13' of git://git.kernel.org/pub/scm/linux/kernel/git/soc/soc	Linus Torvalds	513	-3328/+26470
2021-04-07	Merge tag 'ti-k3-dt-for-v5.13' of git://git.kernel.org/pub/scm/linux/kernel/g...	Arnd Bergmann	23	-11/+3501
2021-03-11	arm64: dts: ti: Add support for Siemens IOT2050 boards	Jan Kiszka	4	-0/+778
2019-09-24	Merge tag 'platform-drivers-x86-v5.4-2' of git://git.infradead.org/linux-plat...	Linus Torvalds	7	-16/+222
2019-09-20	platform/x86: pmc_atom: Add Siemens SIMATIC IPC277E to critclk_systems DMI table	Srikanth Krishnakar	1	-0/+7
2019-09-07	platform/x86: pmc_atom: Add Siemens SIMATIC IPC227E to critclk_systems DMI table	Jan Kiszka	1	-0/+7
2019-05-14	mfd: intel_quark_i2c_gpio: Adjust IOT2000 matching	Su Bao Cheng	1	-10/+0
2019-04-25	serial: 8250_exar: Adjust IOT2000 matching	Su Bao Cheng	1	-2/+5
2019-04-18	stm32: pci: Adjust IOT2000 matching	Su Bao Cheng	1	-2/+6
2017-07-07	Merge (most of) tag 'mfd-next-4.13' of git://git.kernel.org/pub/scm/linux/ker...	Linus Torvalds	37	-183/+985
2017-07-06	mfd: intel_quark_i2c_gpio: Add support for SIMATIC IOT2000 platform	Jan Kiszka	1	-0/+16
2017-07-03	gpio-exar/8250-exar: Make set of exported GPIOs configurable	Jan Kiszka	2	-26/+45
2017-05-21	iiio: adc: Add support for TI ADC108S102 and ADC128S102	Jan Kiszka	4	-0/+379
2017-05-02	Merge git://git.kernel.org/pub/scm/linux/kernel/git/davem/net-next	Linus Torvalds	1690	-45253/+107963
2017-05-02	stm32: Add support for SIMATIC IOT2000 platform	Jan Kiszka	1	-1/+25

Debian kernel team > linux > Merge requests > !472

Open Created 6 days ago by Henning Schild

[x86]: Enable SIMATIC_IPC wdt and leds as module

Industrial Open Source



CIVIL
INFRASTRUCTURE
PLATFORM
INDUSTRIAL GRADE LINUX

Projects from Linux Foundation
with Siemens as founding
member

<https://www.cip-project.org/>
<https://margo.org/>

Harmonization of the
technical foundation for Linux
and Open Source based
industrial systems



CIP, Civil Infrastructure Platform and Margo, and their respective logos are trademarks of The Linux Foundation.

Linux is a registered trademark of Linus Torvalds.

Open Source – Event series



2014 - 2016

Open Source @ BT in Zug



2017 - 2019

Open Source @ BT at the GALVANIK



2020 – 2024+

Open Source @ Siemens at GALVANIK

- Nobody requested to start an event series, **if you believe in something do it and form an alliance with like-minded people!**
- Started as internal only, now streamed to the public and with about 120 people on-site (speakers and guests).
- Focus on technology and collaboration culture, no sales!
- Balanced mix of external and Siemens speakers
- Call for presentations for the next event June 3rd & 4th 2025:
<https://opensource.siemens.com/events/2025/>



Q&A

Happy Hacking
&
Have Fun!

Contact



Roger Meier

Distinguished Engineer

Service Owner code.siemens.com

r.meier@siemens.com

<https://opensource.siemens.com/>

<https://blog.siemens.com/space/developers/>