

| Open Source @ Siemens

Airbus TOPS meeting, November 8th 2022

Who are we?



Florian Greinacher

<https://github.com/fgreinacher>



Nejc Habjan

<https://github.com/nejch>

What we do at Siemens...



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 ...



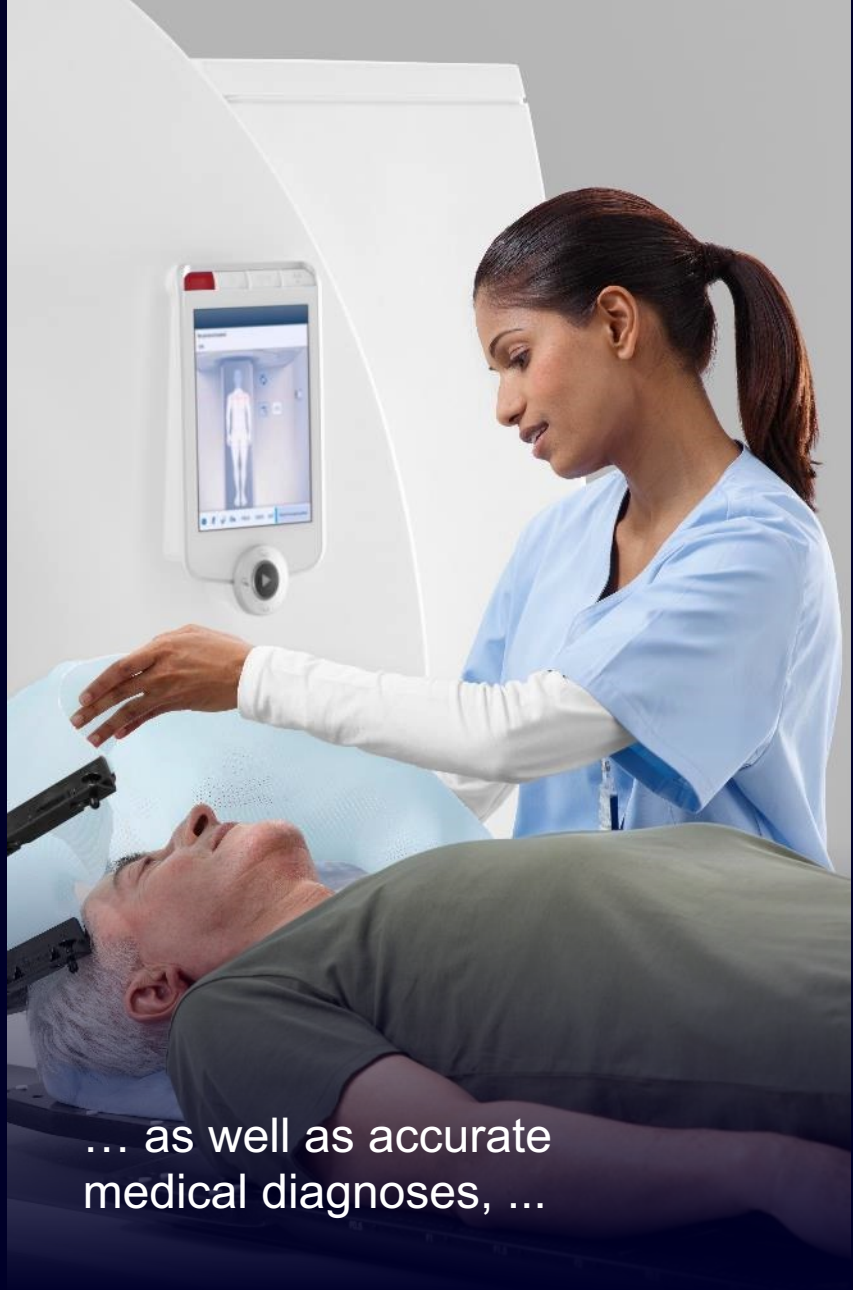
... to travel on trains made by Siemens ...



... operated with Siemens infrastructure technology.



We rely on life-saving drugs
and treatments...



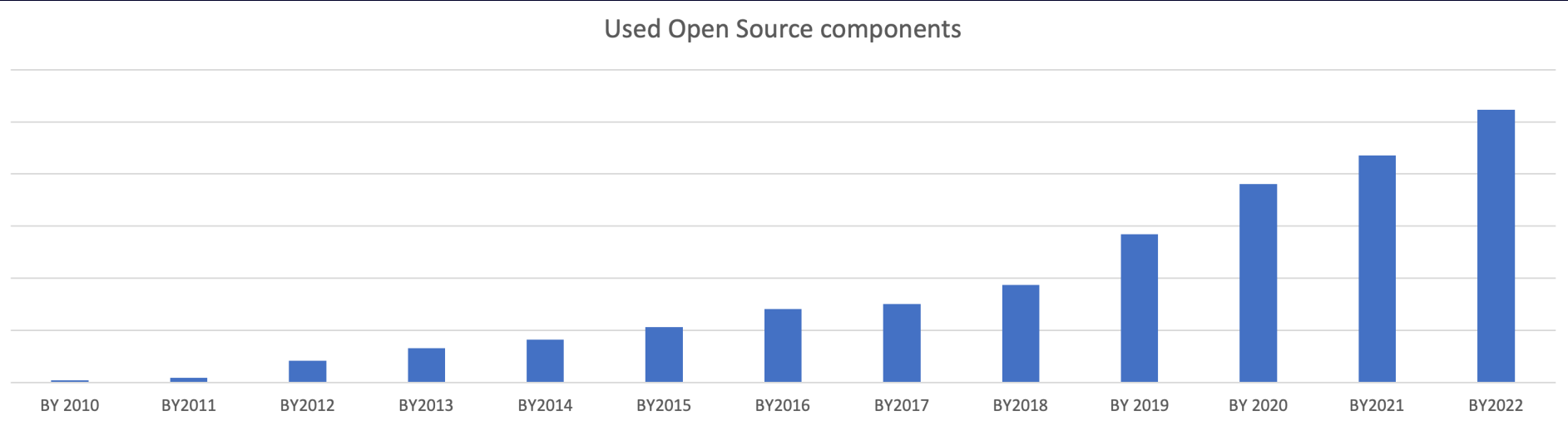
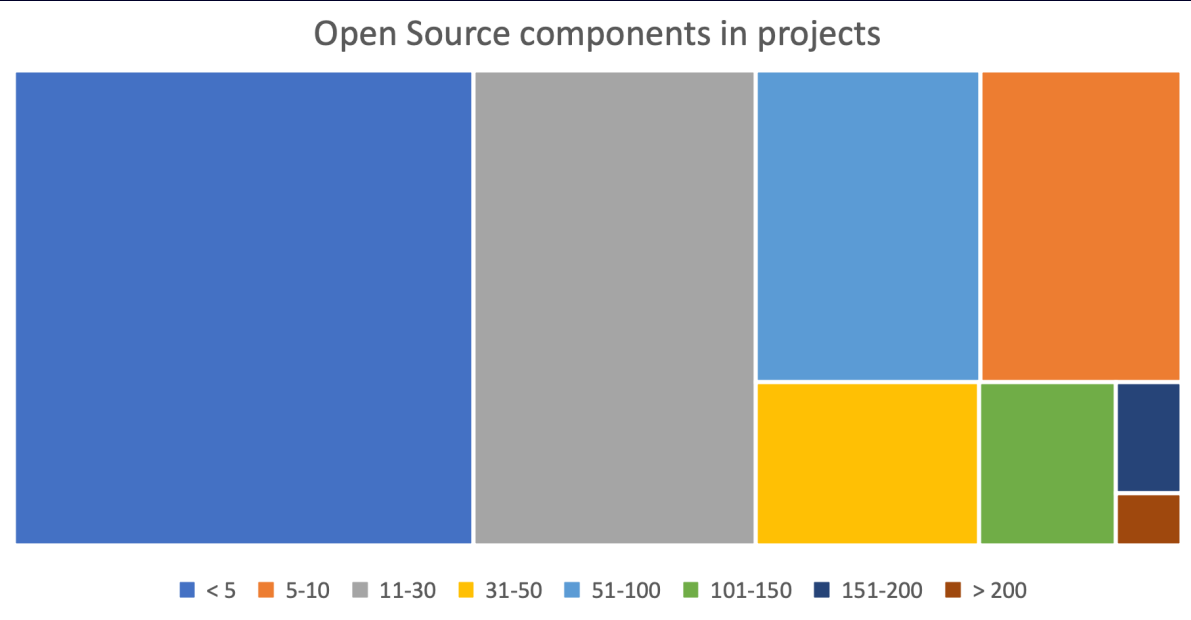
... as well as accurate
medical diagnoses, ...



... all of which are made
possible by Siemens solutions.

Products consist of 0% - 99% Open Source

- Open Source usage is increasing rapidly
- Adoption varies a lot between products
- Not everybody is at the same level



Establish an Open Source Culture

code.siemens.com - DevOps at scale











Social coding platform to collaborate on code within minutes.






Projects New project



Your projects 792 Starred projects 14 **Explore projects** Explore topics Most stars

All Most stars Trending Visibility: Public

	siemens / code  Maintainer code.siemens.com - for developers from developers Topics: Inner Source Open Source code + 3 more	★ 375 🗨️ 188	Updated Oct 26, 2022, 8:08 AM
	linux / las  Other This project generates packages and repositories to Siemens-ify your favorite Linux ins... Topics: Linux Docker siemens + 1 more	★ 330 🗨️ 29	Updated Oct 24, 2022, 9:23 PM
	simpl / simpl  Other The home of the simpl.siemens.io documentation and SiMPL high-level planning . Feel free to log any issue here that is not directly tied to a single specific sub project. Topics: SiMPL siemens mobi... Documentation + 3 more	★ 176 🗨️ 26	Updated Oct 25, 2022, 5:22 PM
	siemens / developer  Let's improve the developer experience in a collaborative way! https://developer.siemens.com	★ 79 🗨️ 1	Updated Oct 25, 2022, 7:15 AM
	ccp / meta-siemens  Other Yocto/OpenEmbedded layer for Siemens and CCP Topics: Linux Inner Source IoT + 1 more	★ 72 🗨️ 14	Updated Oct 26, 2022, 7:58 AM


Everything 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 collaborati...
Most of our core components such as Linux, U-Boot and OpenEmbedded are using git as their sourc...
well. Otherwise we will not be able to manage history and code changes
Social coding platforms do provide an additional layer on top of git to simplify forking, merging, pull...
Precondition is to use ATOS infrastructure with a provided "must use" Red Hat Enterprise Linux. It v...
Of course, I would prefer 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](#) : Thank! 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

code.siemens.com - DevOps at scale

Users
+ 17.183 users (+47%)





2022: 54.036
2021: 36.853



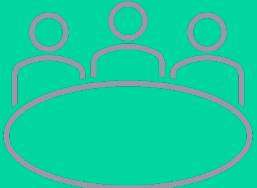
105 active organizations from 76 countries

Core team consists of **12 people** with origin from **8 countries** and different BUs



Open Source only, **0€ license fees**

Internal projects
+ 8.824 (+34%)




2022: 34.437
2021: 25.613

Internal community with **6,330 active people**




Merge requests
+ 441.699 (+37%)



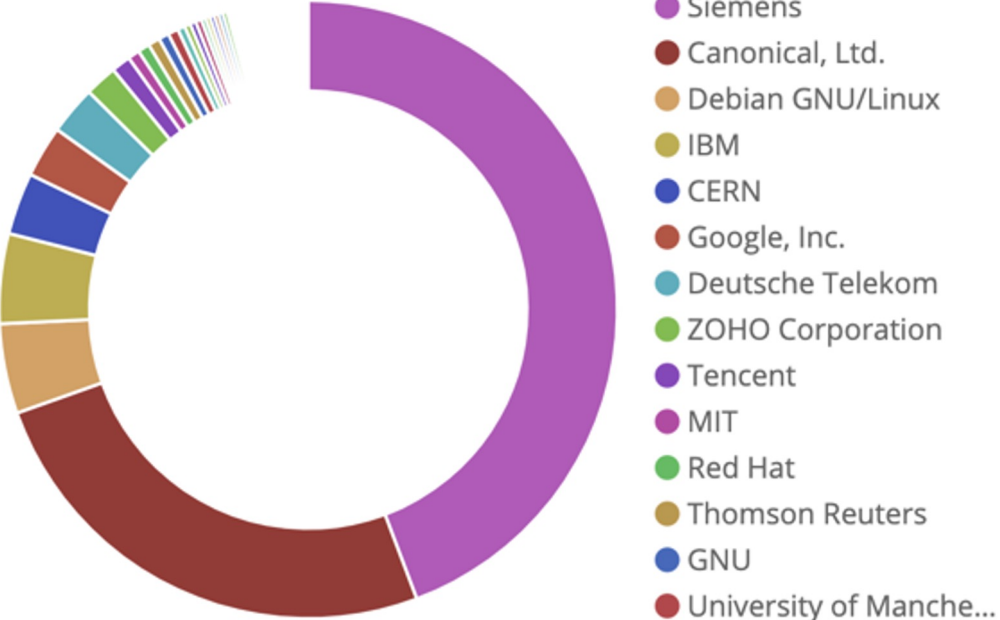
2022: 1.627.078
2021: 1.185.379

Build pipelines
+ 3.970.275 (+44%)



2022: 12.973.311
2021: 9.003.036

Upstream First - No Patches



> 300 merge requests to GitLab
10 elections as GitLab MVP (most valuable person) within the crew

No Help Desk



The screenshots illustrate the community's engagement through documentation, issue tracking, and internal social networking.

Month	Issues	Merge Requests	Completion
September 2019	73 Issues	5 Merge Requests	30% complete
October 2019	10 Issues	0 Merge Requests	0% complete
November 2019	-	-	-

Great engagement within the community via issue tracker, internal social network and extensive documentation

Social Coding Ambassadors

65 Ambassadors

Search through all ambassadors.

Zug, Switzerland

Community IDs

- code.siemens.com
- github.com
- gitlab.com
- openhub.net
- apache.org

open-source inner-source
ci-cd

Zug, Switzerland

Community IDs

- code.siemens.com
- github.com
- gitlab.com
- openhub.net

open-source inner-source
ci-cd

Muenchen, Germany

Community IDs

- code.siemens.com
- github.com
- gitlab.com
- stackoverflow.com

open-source ci-cd

Zug, Switzerland

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- code.siemens.com
- github.com
- gitlab.com
- bitbucket.org
- openhub.net

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Zug, Switzerland

Community IDs

- code.siemens.com

siemens > code > Merge requests > I2160

docs(ambassadors): add as ambassador Edit

Merged requested to merge (removed):docs/new-ambassa... into main Jul 29, 2022, 3:36 PM

Overview 13 Pipelines 0 Changes 1 All threads resolved!

Hey everyone!

Starting my 4th year in the company, I wanted to dive a bit more in to the deep regarding the code.siemens.com. So far I've used the platform quite

- Review by admission team
- Add new ambassador to "Ambassadors of code.siemens.com" in Teams
- Add new ambassador to Outlook meeting invitations (Tu+We series)

Edited Aug 3, 2022, 9:48 PM by

✓ Merge request pipeline #15688595 passed for d9b0042a Aug 3, 2022, 8:59 PM 👍👍 ⬇

Approved by

✓ Test summary contained no changed test results null View full report Expand

Merged by Aug 3, 2022, 9:48 PM Revert Cherry-pick

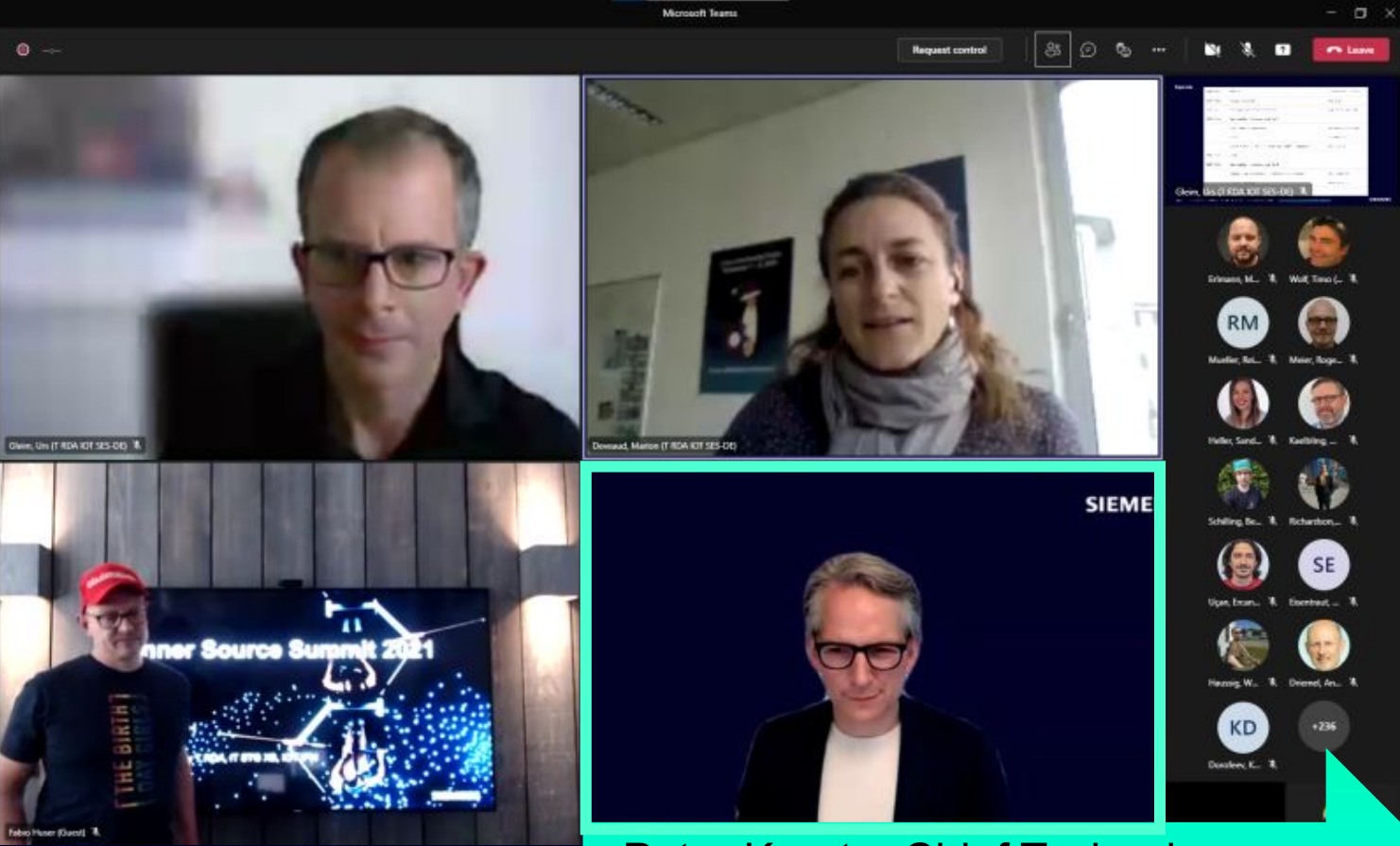
- Changes merged into main with f986a614.
- Deleted the source branch.

✓ Pipeline #15688967 passed for f986a614 on main Aug 3, 2022, 9:50 PM 👍👍

👍 5 🏆 0 📌 2 🗨

Sort or filter

Inner Source Summit 2021



Peter Koerte, Chief Technology and Strategy Officer at Siemens



Huge applause to the code.siemens.com community!
I can only encourage everyone to join this awesome network that opens new opportunities for all of us in terms of innovation.

Open Source Manifesto


siemens > opensource > Merge requests > !102

Draft: docs: add initial manifesto version

 Open Nejc Habjan requested to merge docs/manifesto into main 2 months ago

9 unresolved threads ^ v ⋮

Overview 73 Commits 4 Pipelines 13 Changes 3



Company Principles

- I Mercedes-Benz shall support and encourage its employees to use, contribute to, and create FOSS projects both in Open and Inner Source endeavors. [Encourage FOSS]
- II Mercedes-Benz shall allow the appropriate time for its employees to participate in FOSS activities. [Facilitate FOSS Participation]
- III Mercedes-Benz shall encourage and facilitate learning and advancement of its employees through FOSS activities. [Advancement through FOSS]
- IV Mercedes-Benz shall promote visibility in Open Source communities. [FOSS Visibility]

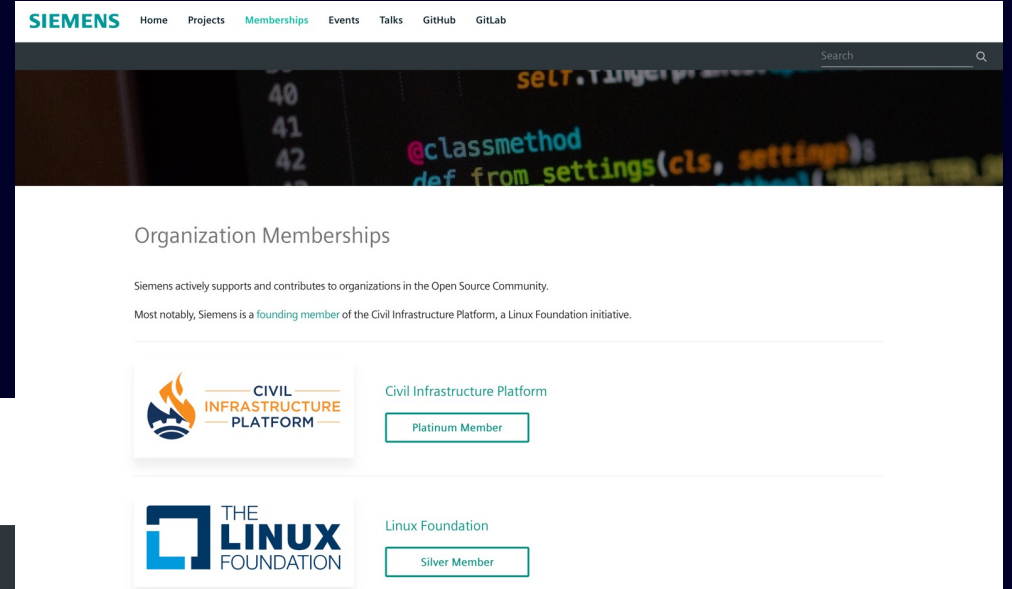
Siemens Open Source activities

Open Source by Siemens

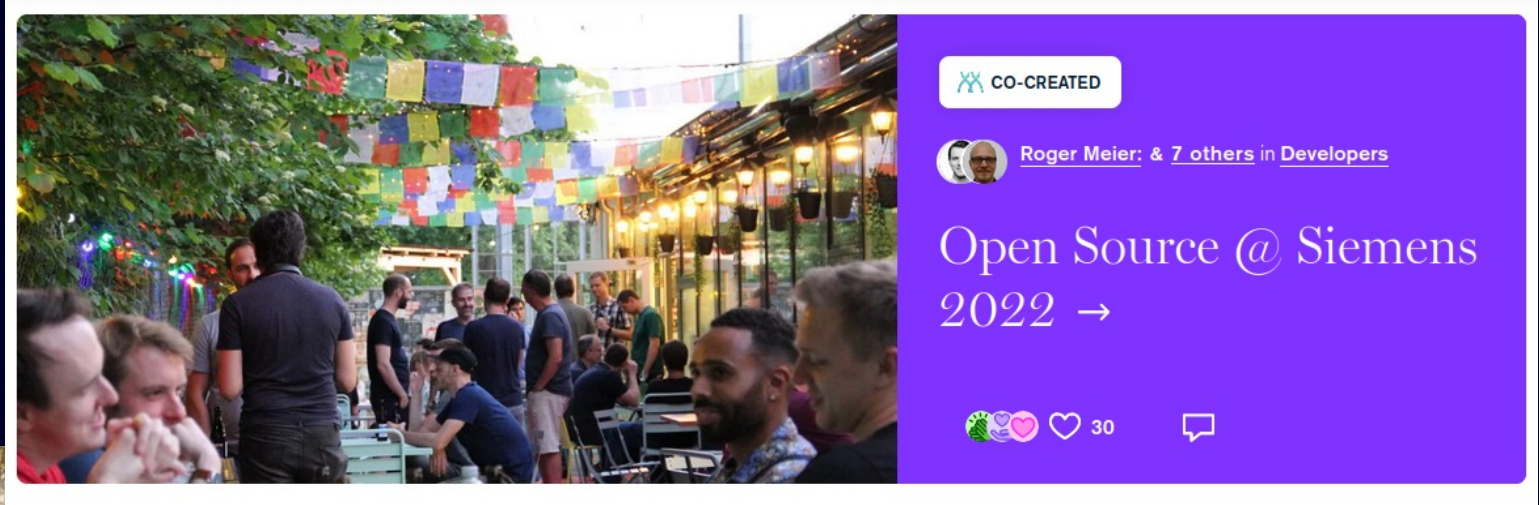
You'll find a growing list of projects published by Siemens that you can explore below.

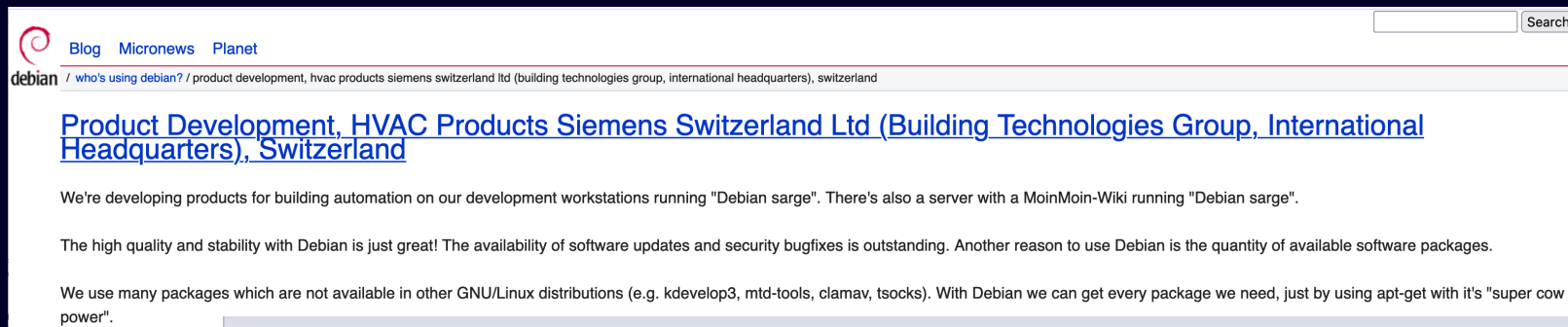
Head over to  github.com/siemens for a more complete list!

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.

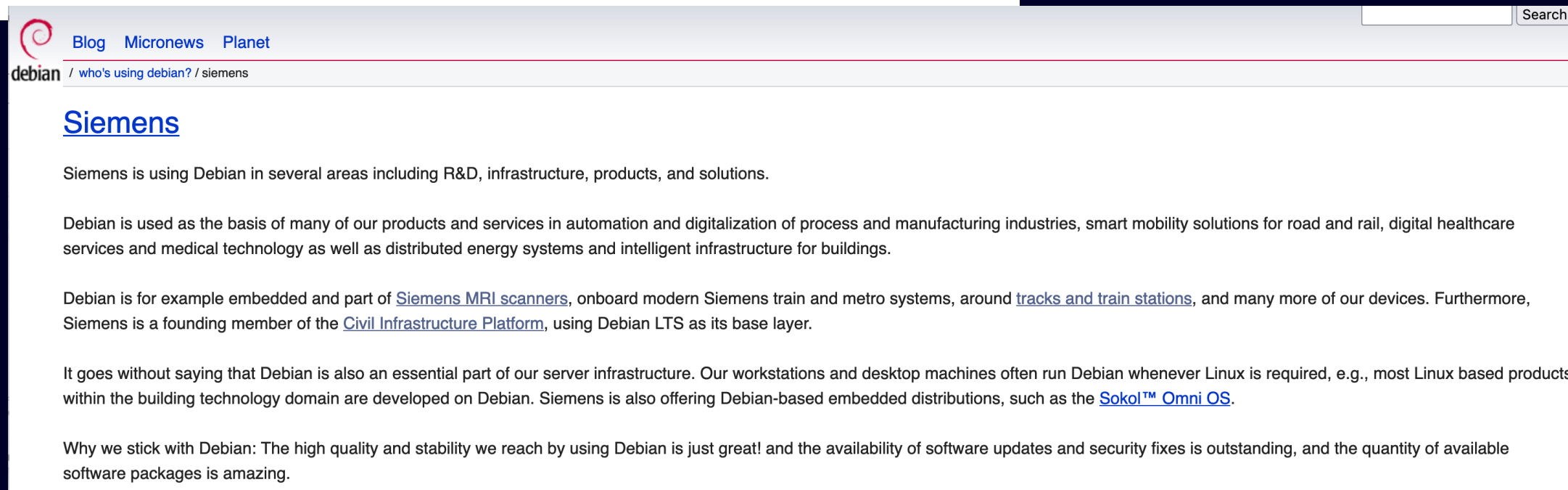


Open Source @ Siemens





This screenshot shows a blog post on the Debian website. The breadcrumb trail is: [debian](#) / [who's using debian?](#) / [product development, hvac products siemens switzerland ltd \(building technologies group, international headquarters\), switzerland](#). The title of the post is [Product Development, HVAC Products Siemens Switzerland Ltd \(Building Technologies Group, International Headquarters\), Switzerland](#). The text of the post includes: "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'."




This screenshot shows a blog post on the Debian website. The breadcrumb trail is: [debian](#) / [who's using debian?](#) / [siemens](#). The title of the post is [Siemens](#). The text of the post includes: "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


phoronix
 ARTICLES & REVIEWS NEWS ARCHIVE FORUMS PREMIUM CATEGORIES

Ad Quad Core 4K mini PC
 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.



The targeted devices by the initial Linux patches include the SIMATIC IPC127E / IPC227D / IPC227E / IPC277E / IPC427D / IPC427E / IPC447E systems that range from mini IoT computers to wall computers used for various industrial applications.

Debian kernel team > linux > Merge requests > !472

Open Created 6 days ago by  **Henning Schild**

[x86]: Enable SIMATIC_IPC wdt and leds as module

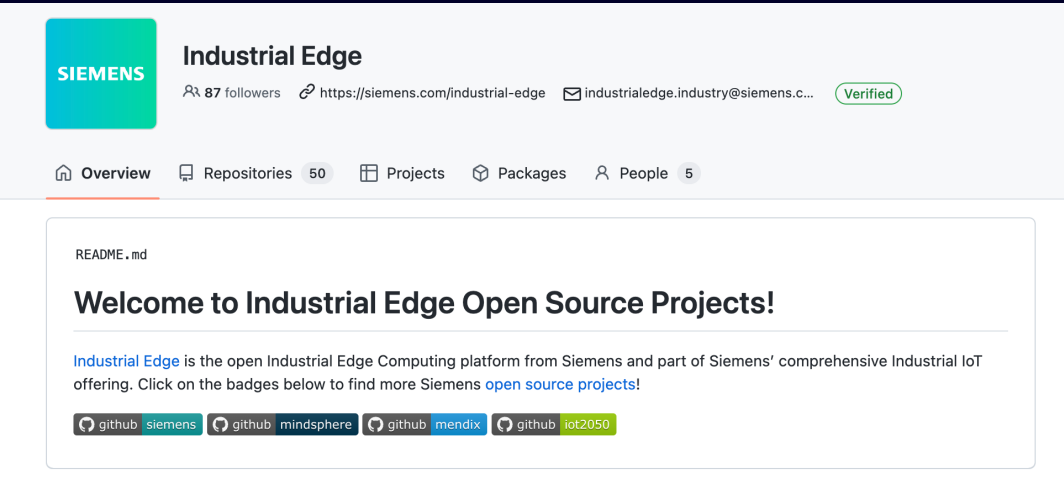
 **index : kernel/git/torvalds/linux.git** master switch Linus Torvalds

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	stmmac: 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	io: 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	stmmac: Add support for SIMATIC IOT2000 platform	Jan Kiszka	1	-1/+25

Developers as customers



The screenshot shows the GitHub profile for Siemens Industrial Edge. The profile name is "Industrial Edge" with a verified badge. It has 87 followers and a verified status. The navigation bar includes Overview, Repositories (50), Projects, Packages, and People (5). The main content area shows a README.md file with the heading "Welcome to Industrial Edge Open Source Projects!". Below the heading, there is a paragraph explaining that Industrial Edge is an open Industrial Edge Computing platform from Siemens. At the bottom of the README, there are four GitHub repository badges: "github siemens", "github mindsphere", "github mendix", and "github iot2050".

Home > Developers

Welcome Developers!

We believe digitalization is driven by developers, so we are opening Siemens Xcelerator for co-creation. Here you can build new digital solutions or enhance your existing applications with access to our APIs.

MindSphere Open Source Tools and Libraries

MindSphere Open Source Tools and Libraries are contributions from the MindSphere community. These are demo applications, libraries and SDKs and useful connectivity tools which are maintained and released as open source software. The source code for all libraries is available on [Github](#) and the packages can be downloaded via common package management tools.

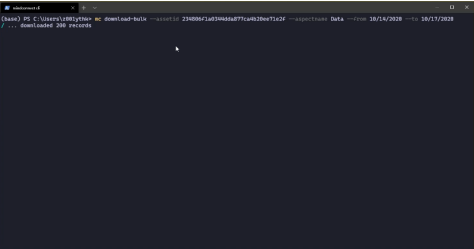
Featured: MindSphere CLI

The [MindSphere CLI](#) is a powerful tool for MindSphere developers and administrators as it gives you scriptable access to common tasks in MindSphere.

It is packaged as part of [@mindconnect/mindconnect-nodejs](#) library. You can install it from [npm](#) or download binaries from the links below.

```
npm install -g @mindconnect/mindconnect-nodejs
```

- Linux v3.20.0
- macOS v3.20.0
- Windows v3.20.0



Investments through Next47

Next47 Team Portfolio

Portfolio

Next47 works with start-ups who are using deep technologies such as artificial intelligence, augmented and virtual reality, cybersecurity, autonomous transportation, IoT, robotics, advanced manufacturing, AI-powered business applications, and automation technologies to solve industry's most difficult and fundamental challenges.

15Five **AEVA** **aforza**

alaiko **APOLLO** **Armorblox**

Bizzabo **blink**

Logz.io
Logz.io combines open source observability (logging, metrics, tracing) and Cloud SIEM into a scalable SaaS solution
<http://logz.io> info@logz.io

Apollo GraphQL
A community building flexible open source tools for GraphQL.
336 followers San Francisco, CA <https://www.apollographql.com> [@apollographql](https://twitter.com/apollographql) **Verified**

Summary

We're building a lot of different things.

Open Source adoption comes with a culture change.

Lots of great initiatives take place right now.

Questions?

| Contact



Florian Greinacher

florian.greinacher@siemens.com



Nejc Habjan

nejc.habjan@siemens.com

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