

# OPEN VS. COLLABORATIVE: LESSONS FROM LINUX AND GOOGLE SUMMER OF CODE

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What the open hardware movement is doing is truly amazing; this generation has unprecedented access to manufacturing electronic hardware. Nevertheless, this access is still not equitable and real barriers exist for many to impact the state of the art. Many lessons around the free and open source software movement can be applied to enable hardware collaboration, expanding that access and helping to accelerate progress. Jason Kridner will explore the lessons BeagleBoard.org has encountered for the open hardware movement particularly as part of collaborating in Linux and Google Summer of Code projects



# TAKE-AWAYS

- Don't just provide examples, contribute "upstream" to Linux and the open source projects you use, like KiCAD
- Bring new people into the contribution fold through programs like Google Summer of Code
- Help advance tools that will help foster collaboration
- [BeagleBoard.org](http://BeagleBoard.org) is here and ready to collaborate



# WHAT IS LINUX AND WHY IS IT AMAZING?

[HTTPS://WWW.LINUXFOUNDATION.ORG/NEWS-MEDIA/ANNOUNCEMENTS/2015/02/LINUX-FOUNDATION-RELEASES-LINUX-DEVELOPMENT-REPORT](https://www.linuxfoundation.org/news-media/announcements/2015/02/linux-foundation-releases-linux-development-report)

- Nearly 12,000 developers from more than 1,200 companies have contributed to the Linux kernel since tracking began 10 years ago. Just since the last report, more than 4,000 developers from 200 companies have contributed to the kernel, half of whom contributed for the first time.
- The Top 10 organizations sponsoring Linux kernel development since the last report include Intel, Red Hat, Linaro, Samsung, IBM, SUSE, Texas Instruments, Vision Engraving Systems, Google and Renesas. It's worth noting that the FOSS Outreach Program for Women ranks #13 for contributions to the Linux kernel during this last cycle with the interns contributing 1.5 percent of the patches to Linux kernel 3.11. The complete top 20 contributing organizations can be seen in the full report.
- The rate of Linux development is unmatched; in fact, Linux kernel 3.15 was the busiest development cycle in the kernel's history. This rate of change continues to increase, as does the number of developers and companies involved in the process. The average number of changes accepted into the kernel per hour is 7.71, which translates to 185 changes every day and nearly 1,300 per week. The average days of development per release decreased from 70 days to 66 days.
- The number of paid developers is on the rise, as companies aggressively recruit top Linux talent. More than 80 percent of kernel development is done by developers who are being paid for their work. Volunteer developers tend not to stay that way for long.





# THE RIGHT TOOLS FOR COLLABORATION

[HTTPS://GITHUB.COM/ABOUT](https://github.com/about)



← → ↻ GitHub, Inc. [US] https://github.com/about ☆ 42



**GitHub** is how people build software

We're supporting a community where more than 15 million people learn, share, and work together to build software.

October 2007 First commit	San Francisco Headquarters	604 Employees worldwide	38+ million Projects hosted
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# WHAT IS GOOGLE SUMMER OF CODE AND WHY IS IT AMAZING?

[HTTPS://SUMMEROFCODE.WITHGOOGLE.COM](https://summerofcode.withgoogle.com)

The image shows a screenshot of the Google Summer of Code website. The browser's address bar displays <https://summerofcode.withgoogle.com>. The website's header includes the Google Summer of Code logo and navigation links: ABOUT, ORGANIZATIONS, HOW IT WORKS, HELP, PROJECTS, and LOG IN.

The main content area features the following statistics:

- 10,900+ STUDENTS, 103 COUNTRIES
- 11 YEARS, 500+ OPEN SOURCE ORGANIZATIONS
- 50,000,000+** LINES OF CODE

Below the statistics, a paragraph describes the program: "Google Summer of Code is a global program focused on bringing more student developers into open source software development. Students work with an open source organization on a 3 month programming project during their break from school."

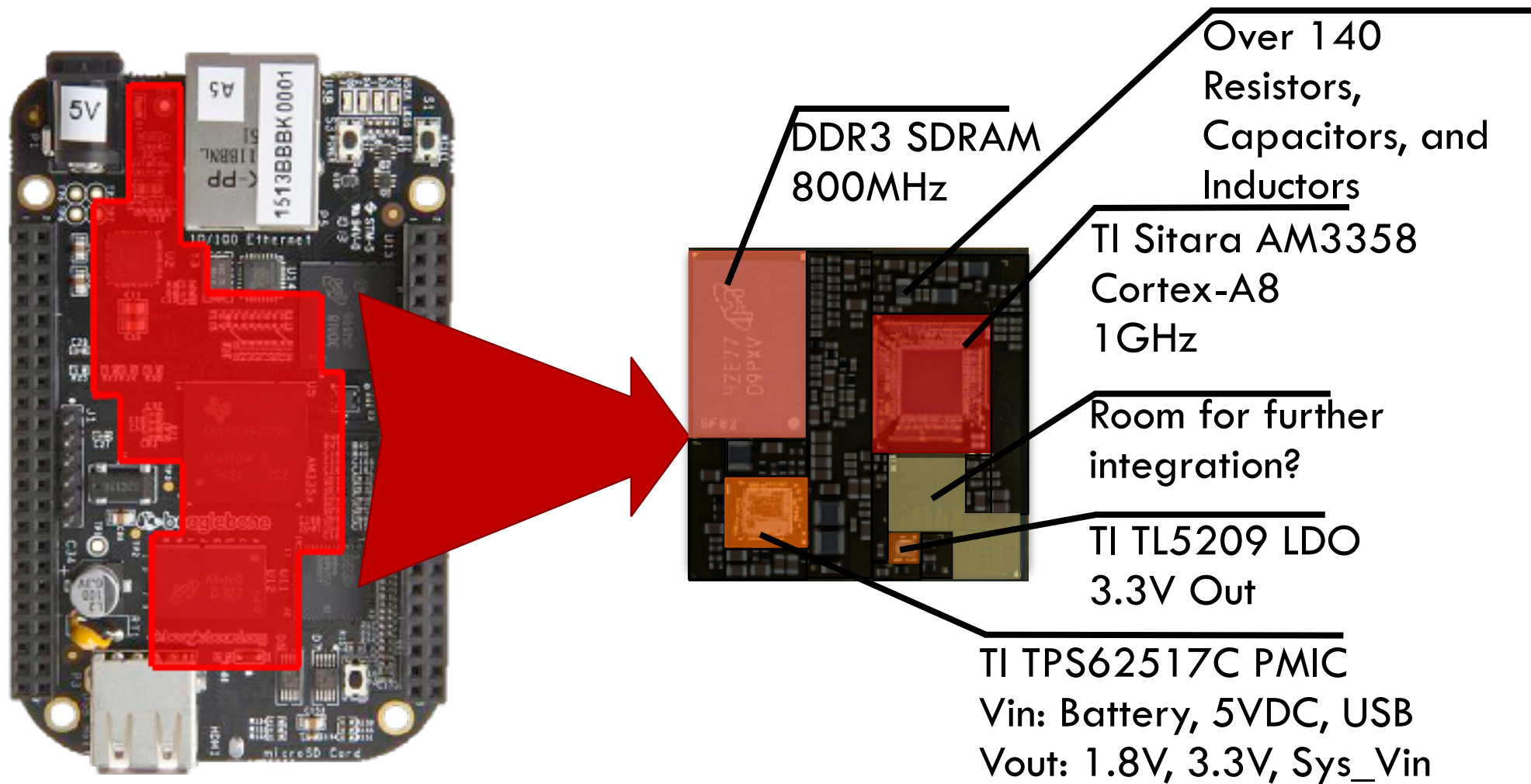
To the right of the text is a graphic of a globe with several speech bubbles containing code snippets:

- `try: test = int(raw_input("testing "))`
- `<DOCTYPE html>`
- `<html>`
- `<body>`
- `public class`
- `static`
- `{`

At the bottom of the page, there is a yellow quadcopter drone on the left and a purple BeagleLogic board on the right. The BeagleLogic board is labeled "beaglelogic" and "Cape version 1.1 www.beaglelogic.net". It also includes the text "All bottom pins GND Up to 5V Inputs".



# WHAT IS THE OSD3358?



9/28/2016

# BEAGLEBOARD.ORG LOGO PROGRAM

[HTTPS://BEAGLEBOARD.ORG/LOGO](https://beagleboard.org/logo)



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