

Lenovo & Linux

TriLUG Apr 2021

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The Lenovo logo is displayed vertically in white text on a red rectangular background in the top right corner of the slide.

Lenovo

Introduction and Overview

- Intro
 - Mark Pearson
(markpearson@lenovo.com)
- Topics
 - Overview
 - Releasing a Linux platform
 - How Lenovo is supporting Linux
 - LVFS, forums & ThinkLMI
 - We're hiring :)
 - Questions/Feedback







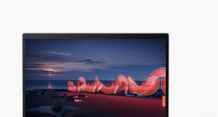

Overview

- Lenovo is doing Linux certification for ~50 platforms. Covering laptops, desktop, workstations and now edge platforms
- We do Ubuntu and RHEL certification with our Linux supported platforms
<https://certification.ubuntu.com/desktop>
<https://catalog.redhat.com/hardware/workstations/search>
- We have a few Fedora platforms available and work actively with the Fedora community
- Aim is to make sure support for our platforms is upstream so that any distro will work. We are contributing directly to open source projects.



Systems online

<https://www.lenovo.com/us/en/d/linux-laptops-desktops>

<p>BUILD WITH LINUX</p>  <p>SAVE 40%</p> <p>ThinkPad T14 with Linux</p> <ul style="list-style-type: none"> • Latest Gen 14" business laptop powered by Intel® • Top rated professional graphics • Built-in encryption security <p>Starting at \$1,620.00 \$972.00 Savings of \$648.00 Use eCoupon: THINKAPRIL</p> <p>CUSTOMIZE & BUY</p> <p><input type="checkbox"/> Compare</p> <p>Double Rewards = \$58</p> <p>Ships FREE in 8-12 weeks</p> <p>★★★★★ 4.6 (265)</p> <p>Learn More ></p> <ul style="list-style-type: none"> • Processor : 10th Generation Intel® Core™ i5-10210U Processor (1.60 GHz, up to 4.20 GHz with Turbo Boost, 4 Cores, 8 Threads, 6 MB Cache) • Operating System : Ubuntu 18.04 Desktop Edition • Memory : 8 GB DDR4 2667MHz (Soldered) • Hard Drive : 128 GB PCIe SSD • Warranty : 1 Year Depot or Carry-in <p>See Full Specs ▾</p>	<p>BUILD WITH LINUX</p>  <p>SAVE 42%</p> <p>ThinkPad P15s Mobile Workstation with Linux</p> <ul style="list-style-type: none"> • Powerful 15.6" mobile workstation • Intel® Core™ with vPro™, ISV-certified • NVIDIA® Quadro® GPU, epic battery life <p>Starting at \$1,749.00 \$1,014.42 Savings of \$734.58 Use eCoupon: THINKAPRIL</p> <p>CUSTOMIZE & BUY</p> <p><input type="checkbox"/> Compare</p> <p>Double Rewards = \$60</p> <p>Ships FREE in more than 12 weeks</p> <p>★★★★★ 4.5 (270)</p> <p>Learn More ></p> <ul style="list-style-type: none"> • Processor : 10th Generation Intel® Core™ i5-10210U Processor (1.60 GHz, up to 4.20 GHz with Turbo Boost, 4 Cores, 8 Threads, 6 MB Cache) • Operating System : Ubuntu Linux 20.04 • Memory : 8 GB DDR4 2667MHz (Soldered) • Hard Drive : 256 GB PCIe SSD • Warranty : 1 Year Depot or Carry-in <p>See Full Specs ▾</p>	<p>BUILD WITH LINUX</p>  <p>SAVE 42%</p> <p>ThinkPad P14s Mobile Workstation with Linux</p> <ul style="list-style-type: none"> • Powerful 14" mobile workstation • Intel® Core™ with vPro™, ISV-certified • NVIDIA® Quadro® GPU, epic battery life <p>Starting at \$1,749.00 \$1,014.42 Savings of \$734.58 Use eCoupon: THINKAPRIL</p> <p>CUSTOMIZE & BUY</p> <p><input type="checkbox"/> Compare</p> <p>Double Rewards = \$60</p> <p>Ships FREE in more than 12 weeks</p> <p>★★★★★ 4.5 (165)</p> <p>Learn More ></p> <ul style="list-style-type: none"> • Processor : 10th Generation Intel® Core™ i5-10210U Processor (1.60 GHz, up to 4.20 GHz with Turbo Boost, 4 Cores, 8 Threads, 6 MB Cache) • Operating System : Ubuntu Linux 20.04 • Memory : 8 GB DDR4 2667MHz (Soldered) • Hard Drive : 256 GB PCIe SSD • Warranty : 1 Year Depot or Carry-in <p>See Full Specs ▾</p>
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Releasing a Linux platform – the timeline

→ Platform kickoff, specs defined

Hardware enablement, initial testing, bug fixing,
alpha image, beta image

GA image created, final testing pass

Energy certification (worldwide standards)

Product documentation

Launch logistics

Linux Program



Sales Support

- Linux offering and support education
- CTO
- Pre-sales & RFP support



Customer Engagement

- Customized offerings
- Post-sales support
- Dedicated Lenovo Linux forums
- Partner participation in Lenovo Linux forums

Offering More

- Product offerings – full config for workstation portfolio
- Thunderbolt 3 Workstation Dock
- Linux distributions
- Component drivers
- LVFS support
- ThinkLMI for Linux



Community Participation

- Kernel contribution
- Vendor partnerships
- Conference sponsorship
- Non-Lenovo forum monitoring



What do we do? An update for 2020



- Testing pre-defined systems, configurations and devices against the latest OS release

- Full configuration workstation portfolio certified
- Ubuntu 20.04 and Fedora 33 releases
- TBT3 workstation dock certified



- Work with partners to include updates in future OS releases

- Ubuntu 20.04 and Fedora 33
- Regular collaboration with distro Linux engineering team



- Collaborate with device driver owners regarding architecture to support Lenovo-unique devices and features

- Patches delivered to upstream kernel community for lap and palm sensors
- Collaboration with community and other vendors on platform profile enhancement.
- ePrivacy and hotkey enhancements in progress



- Work with IHVs to obtain / update Linux drivers for mainstream Linux distributions

- Fingerprint reader available on Linux
- Synaptics F34a functionality
- WWAN work in progress (L860, Quectel)



- Work with firmware owners to support firmware update feature on mainstream Linux distributions (LVFS)

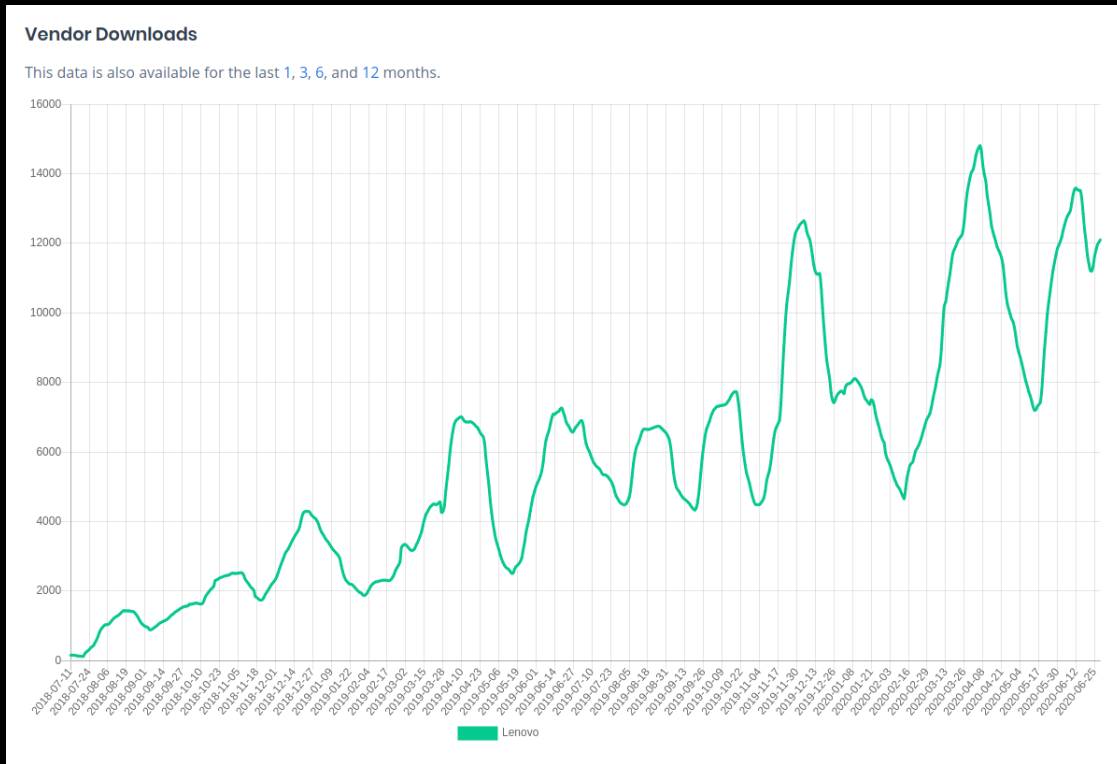
- Over 200 firmware files delivered
- Up to 15000 downloads every two weeks
- Lenovo support forum added to fwupd.org



- Provide support for customer field issues
- Monitor and respond to Linux forum posts

- Increased participation and solutions
- Posts with > 4000 views
- Referenced in external sites
- working with Lenovo support to improve Linux support experience

LVFS



Lenovo leading the way in delivering firmware to LVFS. Over 200 firmware files delivered and increasing.

User downloads increasing – more people are trusting Lenovo to deliver on Linux

<https://github.com/fwupd/firmware-lenovo-thinkpad/issues>

Active community on LVFS supporting Linux customers

Lenovo Linux forums

Very active Linux community on Lenovo Linux forum

<https://forums.lenovo.com/linux>

- over 3000 postings
- contributions from leaders in the community
- 100's of solutions provided
- referenced by external sites

We also participate on many open source forums

- kernel
- audio
- gnome
- systemd
- Fedora devel@lists.fedoraproject.org
- LVFS [fwupd/firmware-lenovo-thinkpad](https://firmware.lenovo-thinkpad.org/)

The screenshot shows the Lenovo Linux forums homepage. At the top, there are navigation links for SHOP, SUPPORT, and COMMUNITY, along with a date and time display (Oct 26, 2020, 15:28:38 PM) and a language selection dropdown. Below the navigation, there are links for Forums, Blogs, and MOTO COMMUNITY, and a search bar with a category filter. The main content area features a banner for "Lenovo Community Listens" and a "Welcome to Lenovo's peer-to-peer Community!" message. Below this, there are sections for "Featured" topics, "Recent Topics" (with a table of discussions), and "My Subscriptions". On the right side, there are boxes for "Community Guidelines", "Check out current deals!", "Top Tags", and "Top Kudoed Posts".

TITLE	VIEWS	POSTS	LAST POSTS
Only 4k option available for 5k monitor (LG Ultrafine 5K) In: Fedora	4	1	by mschwartzau 2020-10-26, 19:03 PM
Fedora on Yoga C740 (14" bought 2020), Fingerprint not working In: Fedora	28	2	by smiles1314 2020-10-22, 16:46 PM
ThinkCentre M720s (Intel UHD 630) not booting on ubuntu 20.04... In: Ubuntu	20	1	by CescUPC 2020-10-22, 12:36 PM

ThinkLMI

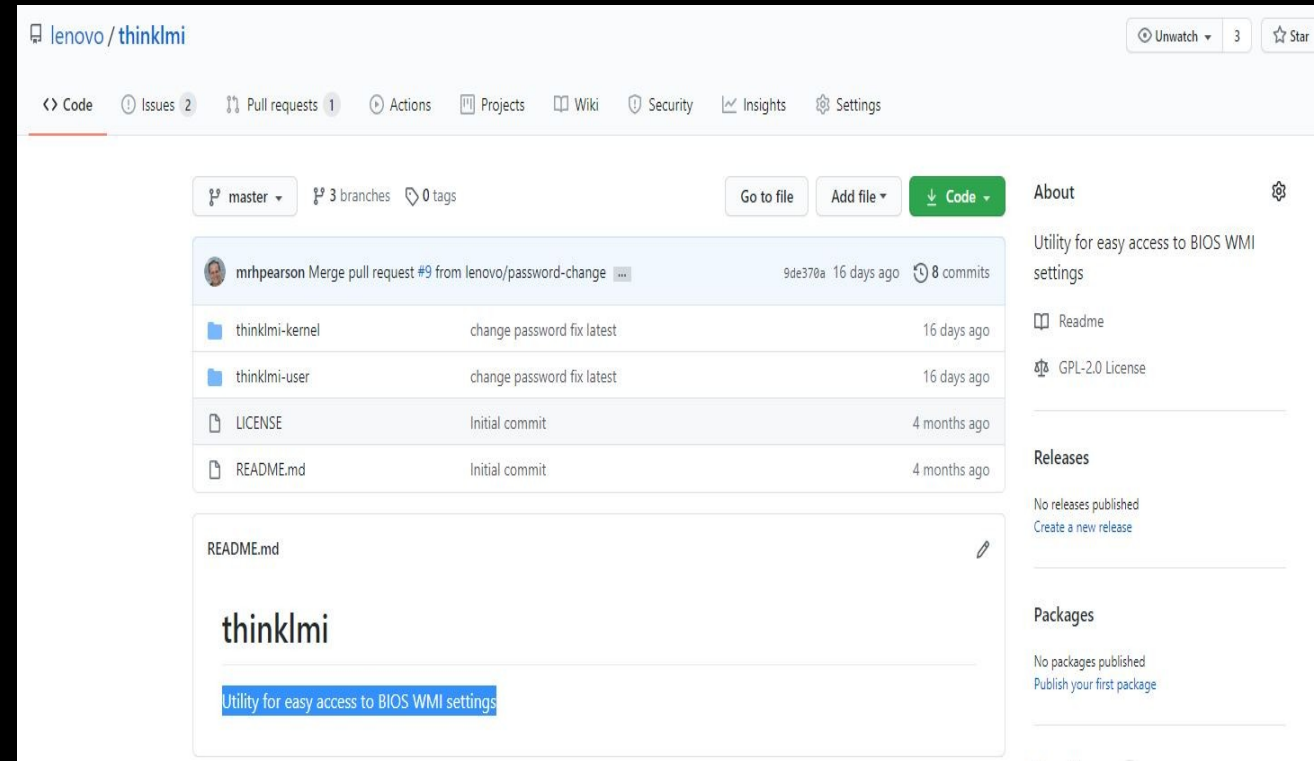
Utility for easy access to BIOS WMI settings

- Kernel driver portion
- User space utility

Open sourced and available publicly:

- <https://github.com/lenovo/thinklmi>

Working on upstreaming (changes needed with introduction of firmware-attributes class)



Upstreaming kernel patches

- Lapmode sensor enablement – status: accepted
- Palm sensor enablement – status: accepted
- Platform profile mode control enhancement – status: accepted
- Temp sensor fixes – status: in progress
- ePrivacy screen support – status: in progress
- Wlan support – status: in progress

We're hiring – Linux kernel engineer

- Work with HW vendors and other Linux engineers to debug, analyse and solve kernel and hardware driver compatibility issues.
- Troubleshoot and provide accurate and timely resolution to customer issues.
- Customize and build kernel for special bids of different industry.
- Implement and backport new features and new drivers from upstream kernel to target platforms.

Enthusiasm about Linux, flexibility and good communication skills are key

Questions & Feedback

Lenovo

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thanks.

**Smarter
technology
for all**

Lenovo