

# Linux Kernel Quality (LKQ)

Proposed Plan (5 Oct 2020 - 4 Apr 2021)

Preliminary snapshot from September 14,  
2020

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## Next Cycle: Summary

- Continue testing LTS, Stable, Mainline and -next upstream kernels as well as Android Common kernels
- Devices under test will be increased to include both the Qualcomm 845c and NXP iMx8mn boards
- More tests are planned including filesystem, kdump, and networking unit tests in addition to real time (RT) kernel trees testing and the start of graphics stack testing through the IGT test suite
- Improving our ability to auto-generate precise, clear and focused reports is a key deliverable we want to achieve
- We will be spending some investigative effort on identifying the most efficient way to scale our QEMU testing (Cuttlefish is a possibility in the future) in order to dramatically speed our testing and bisection

# Linux Kernel Quality (LKQ)

## Next Cycle: Proposed

5 Oct 2020 - 4 Apr 2021

### PMWG Board Farm ([LKQ-10](#))

- [LKQ-284](#) - Add system suspend/resume measurement in WA

### Kernel testing improvements ([LKQ-113](#))

- [LKQ-45](#) - Enable boot testing for allmodconfig arm64 and x86\_64 builds in qemu

### Support bisection in LKFT ([LKQ-124](#))

- [LKQ-291](#) - LKFT: Create automated build bisection

### LKFT Reporting 2.0: Better Scale, Quality, and Efficiency ([LKQ-127](#))

- [LKQ-123](#) - Support patterns for LKFT reporting
- [LKQ-288](#) - LKFT: Implement stable sanity report
- [LKQ-289](#) - LKFT: Implement stable report
- [LKQ-290](#) - LKFT: Create a regression finder

### LKFT CI 2.0: Scale builds and decrease build and test turnaround time ([LKQ-162](#))

- [LKQ-133](#) - Add kselftest build to LKFT 2.0/tuxbuild

### Linux LTS, Stable, mainline, and next kernels triage ([LKQ-184](#))

- [LKQ-172](#) - Test LTS 4.4 kernel releases
- [LKQ-173](#) - Test LTS 4.9 kernel releases
- [LKQ-174](#) - Test LTS 4.14 kernel releases
- [LKQ-175](#) - Test LTS 4.19 kernel releases
- [LKQ-181](#) - Test LTS 5.4 kernel releases
- [LKQ-176](#) - Test upstream stable kernel releases
- [LKQ-177](#) - Test upstream Mainline kernel tree
- [LKQ-178](#) - Test linux-next upstream kernel tree

### Test realtime kernel builds ([LKQ-257](#))

- [LKQ-278](#) - Add realtime kernel trees to LKFT
- [LKQ-281](#) - LKFT: Add build testing to RT trees
- [LKQ-282](#) - LKFT: Add boot testing to RT trees

### Increase LKFT LTS Tests from 20,000 to 40,000 tests per run ([LKQ-271](#))

- [LKQ-254](#) - Evaluate db845 board for inclusion in LKFT
- [LKQ-258](#) - Package Android's Kernel Networking Unit Tests for OE/LKFT
- [LKQ-261](#) - Investigate LTP Kdump tests for inclusion into LKFT
- [LKQ-276](#) - Implement XFStests in LKFT
- [LKQ-285](#) - Add imx8mn-ddr4-evk to LKFT
- [LKQ-286](#) - Implement i-g-t testing on db845 in LKFT
- [LKQ-297](#) - Implement i-g-t testing on iMX8mq in LKFT

### Scale testing using QEMU ([LKQ-296](#))

- [LKQ-298](#) - Scale testing using QEMU on X86
- [LKQ-299](#) - Scale testing using QEMU on Arm
- [LKQ-300](#) - Investigate scalable deployment of QEMU test targets

### Allow kernel developers to validate their trees with LKFT ([LKQ-203](#))

- [LKQ-293](#) - Make LKFT available to Linux kernel developers

Remaining effort for 30 planned epics: 19.5 engineer months

# Supplementary Information



## Next Cycle: Out Of Scope Work

### PMWG Board Farm ([LKQ-10](#)) - has planned epics

- [LKQ-7](#) - Add full CI loop for kernelci build in PMWG farm

### Back port needed fixes to LTS kernels ([LKQ-42](#))

- [LKQ-12](#) - Checking vendor trees for stable backports

### Kernel testing improvements ([LKQ-113](#)) - has planned epics

- [LKQ-43](#) - Fill in LTP coverage for syscalls
- [LKQ-44](#) - Randconfig build testing

### Kernel testing for server and Intel 0-day alternative ([LKQ-118](#))

- [LKQ-114](#) - Add Server HW to LKFT as a remote lab
- [LKQ-115](#) - Identify relevant tests from the LKP test suite
- [LKQ-116](#) - Detail current Intel 0-day tests

### Support bisection in LKFT ([LKQ-124](#)) - has planned epics

- [LKQ-292](#) - LKFT: Create automated test bisection

### Linux LTS, Stable, mainline, and next kernels triage ([LKQ-184](#)) - has planned epics

- [LKQ-163](#) - LKFT project progress visualization
- [LKQ-164](#) - Add LKFT stats to lkft.linaro.org

### Test using debug configurations ([LKQ-188](#))

- [LKQ-186](#) - Identify and enable additional kernel debug options
- [LKQ-187](#) - Investigate in-kernel tests

### LKFT Tooling Improvement and Maintenance ([LKQ-234](#))

- [LKQ-272](#) - Implement build records in qa-reports for LKFT 2.0

### Increase LKFT LTS Tests from 20,000 to 40,000 tests per run ([LKQ-271](#)) - has planned epics

- [LKQ-117](#) - Investigate adding LKP tests into LKFT
- [LKQ-249](#) - Investigate mmtests for inclusion into LKFT
- [LKQ-262](#) - Investigate LTP network tests (single host) for inclusion into LKFT
- [LKQ-264](#) - Test KVM on an Arm host system
- [LKQ-265](#) - Consider safeside for inclusion as a new testsuite
- [LKQ-266](#) - Investigate adding KUnit to LKFT
- [LKQ-267](#) - Investigate vdsotest for inclusion in LKFT
- [LKQ-268](#) - Introduce CoreSight support to LKFT

# Previous Cycle Summary



## Last Cycle: Key Achievements

### LCG Testing Activities on Android ([LKQ-6](#))

- [LKQ-3](#) - Triage activities from week to week for the Android Common Kernel Testing in LKQ

### Kernel testing for server and Intel 0-day alternative ([LKQ-118](#))

- [LKQ-283](#) - Create OE root file system for ThunderX2

### Setup and configure members remote labs ([LKQ-125](#))

- [LKQ-119](#) - Setup NXP Remote lab
- CANCELLED - [LKQ-120](#) - Setup TI remote lab

### LKFT Reporting 2.0: Better Scale, Quality, and Efficiency ([LKQ-127](#))

- [LCG-2429](#) - Auto-generate Android Common kernel test results
- [LKQ-122](#) - Reproduce LKFT's kselftest report using squad-client

### LKFT CI 2.0: Scale builds and decrease build and test turnaround time ([LKQ-162](#))

- [LKQ-128](#) - Enable kernelci access for x15
- [LKQ-152](#) - qemu\_arm64: Migrate LKFT workload from ci.linaro.org to ci.lkft.org
- [LKQ-154](#) - x15: Migrate LKFT workload from ci.linaro.org to ci.lkft.org
- [LKQ-155](#) - qemu\_x86\_64: Migrate LKFT workload from ci.linaro.org to ci.lkft.org
- [LKQ-156](#) - qemu\_i386: Migrate LKFT workload from ci.linaro.org to ci.lkft.org
- [LKQ-157](#) - qemu\_arm: Migrate LKFT workload from ci.linaro.org to ci.lkft.org

### LKFT Tooling Improvement and Maintenance ([LKQ-234](#))

- [LKQ-231](#) - Yocto-compatible version of meta-lkft
- [LKQ-232](#) - Create Poky root file systems
- [LKQ-233](#) - Build LKFT rootfs in LKFT 2.0
- [LKQ-273](#) - LKFT: Update LTP release 20200515
- [LKQ-280](#) - Convert LKFT LAVA jobs from LXC to Docker

### Increase LKFT LTS Tests from 20,000 to 40,000 tests per run ([LKQ-271](#))

- [LKQ-248](#) - Investigate adding XFStests into LKFT
- [LKQ-252](#) - Investigate LTP tracing test cases for LKFT test plan improvement
- [LKQ-255](#) - Implement i-g-t testing in LKFT
- [LKQ-263](#) - Investigate LTP kernel crypto tests for inclusion into LKFT
- [LKQ-279](#) - Add LTP controllers and cgroup tests

Increase LKFT LTS Tests from 20,000 to 40,000 tests per run ([LKQ-271](#))

- [LKQ-276](#) - Implement XFStests in LKFT - 2020.07 → 2020.10