

---

# Debugging and Profiling C++ Applications on Linux

Created on March 16, 2023

The logo for KDAB, featuring a stylized white lightning bolt icon to the left of the text "KDAB" in white, all on a blue background.

KDAB

*The Qt, OpenGL and C++ Experts*

---

No part of this publication may be made available to others than the named licensee which is shown on every page by any means, electronic, mechanical, photocopying, recording or otherwise, or translated into any language, without the prior written permission of the publisher.

## Debugging C++ Applications

- Debug Symbols, Compiler Optimizations
- Testing
- Code Coverage
- Tracing
- Debugger
- RenderDoc
- Valgrind
- Sanitizers
- Assertions
- Static Code Analysis
- Crash Reporting

## Profiling C++ Applications

- Introduction
- Profiling Setup for C++ Applications
- Manual Timing
- Linux Perf
- VTune
- Valgrind Profiling Tools
- Heaptrack
- LTTng
- OpenGL
- Conclusion

## Appendix

- Tracing
- Instrumentation
- Sampling
- Performance Counters
- Backtraces
- Other Notes
- Further Reading