A (very) quick overview of libre mechanical software

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Disclaimer

• I am just a hobbyist/student!
• I have not used most of this software in depth
• I will focus only in end-user programs
• Logos and trademarks are part of their respective owners
• Of course, software must be available for Linux
• Try them for yourself! I will try to be as impartial as possible
• It could be pretty good to make this a yearly thing. Help welcome!
• Gotta go fast!!!
CAD

QElectroTech

LibreCAD

FreeCAD

OpenSCAD

QCAD.org

Open Source CAD
CAM

LinuxCNC

CAMotics

Kiri: Moto

FlatCAM

Slic3r
MESHing

MeshLab

GMSH

Netgen/NGSolve

MMG

TetGen

(Old) Cfmesh

libmesh

SnappyHexMesh
Simulation | General, there are just too many
Simulation | CFD

DualSPHysics
OpenLB
Visualization

ParaView

blender
Energy / HVAC related tools

- SAM
- Ladybug Tools
- OpenStudio
- RADSITE | radiance-online.org
Extras

COIN-OR
JuMP
Other tools

- Documentation
  - LaTeX
  - ODF
  - Markdown
  - Scribus (posters, flyers, books)
  - Emacs-orgmode (no joke)

- Project management
  - OpenProject
  - Leantime
  - ProjeQtOr
  - Taiga
  - Kanboard
  - Wekan

- ERP/CRM
  - Dolibarr
  - ERPNext
  - Tryton
  - Odoo
  - SuiteCRM

- Accountancy
  - GNUCash
  - HomeBank
  - KMyMoney
  - Firefly III
  - Ledger
  - Money Manager Ex
Current status | The Good bits

- We are already doing great in research and HPC!
- We have great tools for beginners and small businesses!
- We are incredibly flexible. But everything could be a little bit more integrated
- We can scale. From simple problems to research grade ones
- There are a ton of low-level quality tools! (Not covered in this talk)
Current status | Bad bugs

- Industry acceptance/usage (very) low
- No official support! (Not quite)
- 5 Axis CAM, PLC programming :’(
- Low integration of the different tools. Bravo to Salome and FreeCAD
- User interfaces are lagging behind
- Some big domains are not covered, for example, turbomachines
Future

• Obviously: need for better commercialization!
• Starting with support. Some are already providing different services
• Better/more accessible documentation. Tutorials, courses
• More visibility. That is the goal of this talk
• More/better integration of different tools
• Better UI/UX
• Maintain and improve the quality of the software
What can I do?

• Use the programs!
• Take part in the community! Help people in the forums, write blogs…
• Tutorials, documentation and examples
• Feedback: opinions, testing unreleased versions, new features…
• Spread the word, show what we are capable of
• Translate
• Code?
• Donations?
Thank you! Is there time for Q&A, issues?

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