

Toshiba Dynabook Portege X30L-J

Linux Mint 20.1 with Mate desktop

Engineers manual

v20210414

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1 Intention

The intention of this document is to create a manual for the standard computer user wanting to use Linux.

ONE machine - ONE operating system - ONE manual.

2 User manual

By this I mean the end user manual versus the technicians manual versus this engineers manual.

3 Versions

The version number of this manual is in its own filename. It is the reverse date.

YYYYMMDD_filename

The extended type is:

YYYYMMDD_hhss_filename

which may be done if several versions are created in one day.

The reason for this versioning system is for easy organisation in any file system on any platform.

4 Improvement suggestions

Found in the Technicians manual

- 4.1 Torx screws on the bottom removable panel. Actually, everywhere. Philips heads are designed to slip out at a specific torque rating, but they inevitably just mangle the head. Maybe the modern Philips head is not designed to do this and thus are not true to original concept.

5 Description

This document outlines the engineering details of a Toshiba Dynabook Portege X30L-J notebook computer running Linux Mint version 20.1.

I personally want every nut, bolt, alloy, mould, CAD drawing, chip design etc documented so that in 500 years time another entity could rebuild the system as it is today. From mining the raw materials out of the ground to the final product. If this system is well designed then the entity way off into the future would say "Wow, this really was designed right the first time and it just works well"

It should be repairable and modular.

The designs should be timeless works of useful art.

6 The machine

Taken from:

Menu → System Reports → System Information.

System: Kernel: 5.8.0-48-generic x86_64 bits: 64 compiler: N/A Desktop:
MATE 1.24.0 wm: marco
dm: LightDM Distro: Linux Mint 20.1 Ulyssa base: Ubuntu 20.04 focal
Machine: Type: Laptop
System: Dynabook
product: PORTEGE X30L-J v: PCR10A-02P003 serial: <filter>
Chassis: type: 10 v: Version 1.0 serial: <filter>
Mobo: Dynabook model: A010D/0001 v:
Version A0 serial: <filter> UEFI: Dynabook
v: Version 1.90 date: 02/04/2021
Battery: ID-1: BAT1 charge: 37.7 Wh condition: 54.1/53.1 Wh (102%)
volts: 15.7/15.4
model: G71C000M8221 serial: <filter> status: Discharging
CPU: Topology: Quad Core model: 11th Gen Intel Core i5-1135G7 bits: 64
type: MT MCP
arch: Tiger Lake rev: 1 L2 cache: 8192 KiB
flags: avx avx2 lm nx pae sse sse2 sse3 sse4_1 sse4_2 ssse3 vmx
bogoMIPS: 38707
Speed: 851 MHz min/max: 400/4200 MHz
Core speeds (MHz): 1: 608 2: 969 3: 3480 4: 1269
5: 1080 6: 666 7: 3437 8: 1064
Graphics: Device-1: Intel driver: i915 v: kernel bus ID: 00:02.0 chip ID:
8086:9a49
Display: x11 server: X.Org 1.20.9
driver: modesetting unloaded: fbdev,vesa
compositor: compiz resolution: 1920x1080~60Hz
OpenGL: renderer: Mesa Intel Xe Graphics (TGL GT2) v: 4.6 Mesa
20.2.6
direct render: Yes
Audio: Device-1: Intel driver: snd_hda_intel
v: kernel bus ID: 00:1f.3 chip ID: 8086:a0c8
Sound Server: ALSA v: k5.8.0-48-generic
Network: Device-1: Intel
driver: iwlwifi v: kernel
port: 3000 bus ID: 00:14.3 chip ID: 8086:a0f0
IF: wlo1 state: up mac: <filter>
Device-2: Intel Ethernet I219-V
driver: e1000e v: 3.2.6-k port: efa0 bus ID: 00:1f.6
chip ID: 8086:15fc
IF: eno2 state: down mac: <filter>

Drives: Local Storage: total: 931.51 GiB used: 492.28 GiB (52.8%)
ID-1: /dev/nvme0n1
vendor: Crucial model: CT1000P1SSD8 size: 931.51 GiB
speed: 31.6 Gb/s lanes: 4 serial: <filter>
Partition: ID-1: /
size: 915.40 GiB used: 492.27 GiB (53.8%) fs: ext4 dev:
/dev/nvme0n1p2

USB: Hub: 1-0:1 info: Full speed (or root)
Hub ports: 1 rev: 2.0
chip ID: 1d6b:0002
Hub: 2-0:1 info: Full speed (or root)
Hub ports: 4 rev: 3.1 chip ID: 1d6b:0003
Hub: 3-0:1 info: Full speed (or root)
Hub ports: 12 rev: 2.0 chip ID: 1d6b:0002

Device-1: 3-5:2 info: Siliconworks SiW HID Touch Controller type: HID
driver: hid-generic,hid-multitouch,usbhid rev: 2.0 chip ID:
5348:1201

Device-2: 3-6:3 info: Chicony Web Camera - HD type:
Video driver: uvcvideo rev: 2.0
chip ID: 04f2:b6f0

Device-3: 3-10:4 info: Intel type: Bluetooth driver: btusb rev: 2.0 chip ID:
8087:0026
Hub: 4-0:1 info: Full speed (or root)
Hub ports: 4 rev: 3.1 chip ID: 1d6b:0003

Sensors: System Temperatures: cpu: 53.0 C mobo: 53.0 C
Fan Speeds (RPM): N/A

7 Chip sets

The chip sets used

8 3D part files

Created in CAD packages
FreeCAD preferably

9 3D Printing replacement parts

10 Electrical Schematics

11 Disabling the IME

Disabling the Intel Management Engine. Refer to blogs at [Puri.sm](https://puri.sm)

12 ToDos

Probably not much as engineering handled by Toshiba

12.1 First item

13 Glossary

~ (tilde)	=	Approximately equal to
OS	=	Operating System
LAN		Local Area Network

14 Forks

Feel free to fork these manuals. They are GNU licence.

15 Notes

The base point for this information is at dionpatelis.com/linux.

16 Contact

You can contact me through forums.linuxmint.com. My username there is 7rocks. You'll have to register as a user. If it's a legitimate question relative to this manual, just post a new topic question on the forum.

17 Contribute

If this manual has helped you and you feel you want to contribute to motivate me to refine it further, Please do so at

<https://www.patreon.com/dionpatelis>.

Really the best way to contribute is to fork this manual. Maybe make one for whatever hardware / OS you use. We are aiming at making a standard fully open source system from the first transistor and screw to the final polished user interface. If there are many, the best one should hold strong and the others will fall away.

I am not saying the X30 is the final portable sub 1kg laptop. It was just the best option I could find in the time frame I had. It can not be unless Toshiba comes aboard and open sources every moulding / part in FreeCAD; then all the chip manufacturers open source the internal circuit designs on KiCAD.