Ubuntu 22.04 Linux Setup Guide

For ThinkStation P360 Tower, Tiny, Ultra



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Section 1 – BIOS Configuration

The first step before installing Linux is to make sure the system BIOS is setup correctly.

 Boot into BIOS by pressing the function F1 key at the "Lenovo" splash screen.



• Tab over to the Security tab and select "Secure Boot".



• Check whether Secure Boot is disabled. If found enabled, disable it.



Save changes by pressing F10 function key. •



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Section 2 – Installing Ubuntu Linux 22.04 LTS

Please refer to the following instructions and screenshots on how to install Ubuntu 22.04 LTS on the Lenovo ThinkStation P360.

- Insert the Ubuntu 22.04 LTS installation media (either through USB or CD/DVD)
- Power on the system and press the F12 function key whenever the following Lenovo splash screen appears.



• Select the Linux bootable installation media from the F12 boot menu list.



• Select "Ubuntu" from the GRUB boot menu and press enter.

GNU GRUB version 2.06 *Try or Install Ubuntu Ubuntu (safe graphics) DEM install (for manufacturers) Boot from next volume UEFI Firmware Settings UEFI Firmware Settings UEFI Firmware Settings		
<pre>GNU GRUB version 2.06 *Try or Install Ubuntu Ubuntu (safe graphics) DEM install (for manufacturers) Boot from next volume UEFI Firmware Settings </pre>		
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	before booting or `c' for a comman	nd-line.

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• Select the "Install Ubuntu" option on the welcome screen.



• Select the appropriate keyboard layout and language and press "Continue".

	May 10 16:20		0 🕩
Keyboard layout			
Choose your keyboard layout: English (Australian) English (Caneroon) English (Ninan) English (Nina Africa) English (Nin Africa) English (Nin English (Nin English (Nin Esperatio Estonian Fatoese Filipino Finnish French	English (US)	5	
Type here to test your keyboard Detect Keyboard Layout	Quit Back Continue		
	Keyboard layout Choose your keyboard layout: English (Australan) English (Kanareon) English (Kana) English (Kana) English (Kan English (Kat English (Kat) English (Install Keyboard layout Chone your kirghoard layout Chone your kirghoard layout Chone your kirghoard layout Chone your kirghoard layout English (US) - English (Colemak) English (US) -	Initial

• Select "Normal Installation" and press "Continue". Optional: "Install third-part software..."

May 10 16:21	♦ 0
install ×	
Updates and other software	
What apps would you like to install to start with? O Normal installation	
Web browser, utilities, uffice software, games, and media players. Minimal installation	
Web browser and basic utilities. Other options	
Download updates while installing Ubuntu This saves time after installation.	and the second second
Install third-party software for graphics and Wi-Fi hardware and additional media formats	
This software is subject to license terms included with its documentation. Some is proprietary.	
Quit Back: Continue	

• Choose the installation type. For simplicity, this guide was done using "Erase disk and install Ubuntu"

	May 10 16:21	1 U
	Install	
Installat	ion type	
This compute View Some The cal	rr currently has no detected operating systems. What would you like to do? disk and install Ubuhtu grinswill disker all your programs, decoments, photos, mudic, and any other files in all operating systems anced restures	
	Quit Back Install Now	

• Select "Continue" to confirm changes will be made to the disk.

May 10 16/22	♦ 0
install	
Installation type	
This computer currently has no detected operating systems. What would you like to do? Erste disk and intral Ubuntu wireing: This will detect allyour programs, documents, photos, mucic, and any other files in all operating systems. Advanced features	
Write the changes to disks? X If you continue, the changes listed below will be written to the disks. Otherwise, you will be able to make for the changes manuful. X	
The particular dataget intervention to the following devices are changed: SCSI5 (0,0,0) (scla)	
The following partitions are going to be formated: partition = of fSCIS (0.0) (side as ESP partition #2 of SCIS (0.0) (side) as ext4	
Go Back Continue	
Back Install Now	

• Choose the appropriate geographical location and select "Continue".



• Fill out the appropriate information and select "Continue".

		May 10 12:23	2			♦ ①
		Install				
Whe	o are you?					
	Your name: Your computer's name: Pick a username: Choose a password: Confirm your password: Confirm your password: Your	name it uses when it tails to other Cog in automatically Require my password to log in Use Active Directory Xi enter doman and other details in	in the nest step.	Mack: Continue	6	
		••••	••			

• Ubuntu installation progress bar will be shown.

May 10 12-22	0
Install Velcome to Ubuntu Fat and full of new features, the latest version of Uburtur makes computing easier to box ext for	

• Once the installation completes, select "Restart now".



• Remove the installation media and press enter.



• User will land on the Ubuntu Desktop Screen.



Section 3 – Installing the Nvidia Graphics Driver

To get optimal performance out of the Nvidia GPU, it is a good idea to install the Nvidia graphics driver.

• To make sure the Nvidia GPU is working, open the terminal and write the command nvidia-smi.

Activities	🖾 Terminal	May 10 12:29	4 0
6		P lenovo@lenovo-lenovo-Product:- Q = _ U ×	
		Lenovoglenovo-Lenovo-Product: 5 mvidia-smi Tue May 10 12:29:39 2022	
A		NVIDIA-5HI 518.60.02 Driver Version: 518.60.02 CUDA Version: 11.6	
		CPU Name Persistence-M Bus-Id Disp.A Volatile Uncorr. ECC Fan Tenp Perf Pwr:Usage/Cap Memory-Usage (GPU-Util Conpute M.	
0		9 NVIDIA 1600 Off 00000000:01:00.0 On N/A 38% 41C P8 N/A / 414 155N18 / 4090416 2% Default	
Á		Processes: GPU GI CI PID Type Process name GPU Henory 10 10 Usage	
?		6 N/A N/A 1886 C /usr/Itb/xorg/Xorg 60118 6 N/A N/A 1989 Cone-remote-desktop-deenon 11118 6 N/A N/A 2845 C /usr/Ithgane-shell 93118	
2		LenovogLenovo-Lenovo-Product: 5	
0			

In case Nvidia GPU is not native, follow the steps below to install the GPU driver:

• Open Software & Updates.

Jbuntu Software	Other Software	Updates	Authentication	Additional Drivers	Developer Options	Livepato
ownloadable fro	m the Internet					
🗹 Canonical-sup	ported free and open	-source softw	vare (main)			
🗹 Community-m	naintained free and op	en-source sol	ftware (universe)			
🗹 Proprietary d	rivers for devices (res	tricted)				
🔽 Software rest	ricted by copyright or	legal issues (multiverse)			
Source code						
Download from:	Server for United S	tates				~
stallable from C	D-ROM/DVD					
Installation Officially sup Restricted co	medium with Ubunt ported pyright	ı 22.04 'Jamn	ny Jellyfish'			

• Click on Additional Drivers

			Software & Upda	ates		_ □
Ubuntu Software	Other Software	Updates	Authentication	Additional Drivers	Developer Options	Livepatch
NVIDIA Corpor	ation: TU117GL [T600]				
This device is using) an alternative driver.					
Using NVID	IA driver metapackag	je from nvidia	a-driver-470 (proprie	etary, tested)		
Using NVID	IA Server Driver meta	package fror	n nvidia-driver-510-s	erver (proprietary)		
Using NVID	IA Server Driver meta	package fror	n nvidia-driver-460-s	erver (proprietary)		
Using NVID	IA driver metapackag	e from nvidia	a-driver-495 (proprie	etary)		
Using NVID	IA Server Driver meta	package fror	n nvidia-driver-470-s	erver (proprietary)		
Using X.Org	X server – Nouveau o	lisplay driver	from xserver-xora-v	ideo-nouveau (open sou	irce)	
_ j j			5		,	
No proprietary drive	ers are in use.				Revert Ap	ply Changes
A proprietary driver has	private code that Ubuntu	developers can'	't review or improve. Se	curity and other updates are	dependent on the driver ve	endor.
						Close

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• Select the driver you would like to install and click Apply Changes

		Software & Upda	ites		_ □
Other Software	Updates	Authentication	Additional Drivers	Developer Options	Livepatch
tion: TU117GL [T600]				
driver metapackag	je from nvidia	a-driver-470 (proprie	tary, tested)		
Server Driver meta	package fror	n nvidia-driver-510-s	erver (proprietary)		
Server Driver meta	package fror	n nvidia-driver-460-s	erver (proprietary)		
driver metapackag	je from nvidia	a-driver-495 (proprie	tary)		
Server Driver meta	package from	n nvidia-driver-470-s	erver (proprietary)		
(server Nouveau d	lisplay driver	from xserver-xorg-v	ideo-nouveau (open sou	urce)	
sareinuse				Revert An	oly Changes
ivate code that Ubuntu	developers can'	t review or improve. See	curity and other updates are	dependent on the driver ve	ndor.
	Other Software ion: TU117GL [T600 n alternative driver. driver metapackag Server Driver meta driver metapackag Server Driver meta server – Nouveau c s are in use.	Other Software Updates ion: TU117GL [T600] n alternative driver. driver metapackage from nvidia Server Driver metapackage fror Server Driver metapackage fror driver metapackage from nvidia Server Driver metapackage from server – Nouveau display driver	Other Software Updates Authentication ion: TU117GL [T600] n alternative driver. driver metapackage from nvidia-driver-470 (proprie Server Driver metapackage from nvidia-driver-510-s Server Driver metapackage from nvidia-driver-460-s driver metapackage from nvidia-driver-495 (proprie Server Driver metapackage from nvidia-driver-495 (proprie Server Driver metapackage from nvidia-driver-495 (sorver) server – Nouveau display driver from xserver-xorg-v s are in use.	Other Software Updates Authentication Additional Drivers ion: TU117GL [T600] n alternative driver. driver metapackage from nvidia-driver-470 (proprietary, tested) Server Driver metapackage from nvidia-driver-510-server (proprietary) Server Driver metapackage from nvidia-driver-460-server (proprietary) driver metapackage from nvidia-driver-495 (proprietary) Server Driver metapackage from nvidia-driver-495 (proprietary) Server Driver metapackage from nvidia-driver-470-server (proprietary) server – Nouveau display driver from xserver-xorg-video-nouveau (open sou	Other Software Updates Authentication Additional Drivers Developer Options ion: TU117GL [T600] naternative driver. driver metapackage from nvidia-driver-470 (proprietary, tested) Server Driver metapackage from nvidia-driver-510-server (proprietary) Server Driver metapackage from nvidia-driver-460-server (proprietary) driver metapackage from nvidia-driver-495 (proprietary) Server Driver metapackage from nvidia-driver-470-server (proprietary) server - Nouveau display driver from xserver-xorg-video-nouveau (open source) server in use. Revert Apple vate code that Ubuntu developers can't review or improve. Security and other updates are dependent on the driver we Apple

• After that system will ask to restart, click Restart.

	Software & Updates	• • •	
Ubuntu Software Other Software Upd	ates Authentication Additional Drivers Develop	per Options Livepatch	
NVIDIA Corporation: TU117GL [T600] This device is using the recommended driver.			
Using NVIDIA driver metapackage from Using NVIDIA Secure Driver metapackage	nvidia-driver-510 (proprietary, tested)		
Using NVIDIA driver metapackage from	nvidia-driver-470 (proprietary)		
Using NVIDIA Server Driver metapacka	e from nvidia-driver-510-server (proprietary)		
🗍 Using X.Org X server – Nouveau display	driver from xserver-xorg-video-nouveau (open source)		
ou need to restart the computer to complete t	e driver changes.		
proprietary driver has private code that Ubuntu develop	ers can't review or improve. Security and or	Restart	
	The system will	restart automatically in 60 seconds.	
	Cancel	Restart	

In case you desire to install a specific Nvidia driver please follow the next steps:

- Download the latest Nvidia graphics driver for the appropriate Nvidia GPU from <u>www.nvidia.com/download</u>
- To get the Nvidia driver running, we will need to blacklist the nouveau driver. Follow the steps below:
 - Log in as root: sudo su
 - Open blacklist.conf file: gedit /etc/modprobe.d/blacklist.conf
 - Blacklist nouveau driver by writing: blacklist nouveau

	Open •	1	*blacklist.conf Art.freelgrabe.fl	Street	18	-		8
	16 blacklist d 17 18 # causes no 19 blacklist e 28 # snd_intel 22 # hardware	Se4x3 s end of confusion by creat rth1394 (Bx0m can interfere with in on its own (Obuntu bug #20	ing unexpected network d intel8x0, doesn't see 11. #6010)	Save the curr interf	ent file			
Inneroglespon desktop://desktop? code su [sudb] password for lenovo: rootglenovo-desktop:/hone/lenovo/Desktop# gedtt /etc/nodprobe.d/blacklist.conf	23 blacklist 5 24 25 # Conflicts 26 blacklist 5 27	sod_intelaxam s with dvb driver (which is sod_av2	better for handling th	is device)				
	28 # replaces 29 blacklist p 30 31 # replaced 32 blacklist b 33	by pHpCL prism54 by b43 and ssb. bcm43xx						
	34 # most apps 35 blacklist g 36 37 # replaced 38 blacklist a	s now use garmin usb driver garmin_gps by asus-laptop (Vbuntu: #1 ssus acpi	directly (Ubuntu: #114 84721)	563)				
	29 40 # low-quali 41 # hangs at 42 blacklist s 43	ity, just noise when being desktop session start (Ubu and_pcsp	used for sound playback ntu: #246969)	, causes				
	44 # ugly and 45 # nice puls 46 blacklist p 47	loud noise, getling on eve seaudio bing (Ubuntu: #770) potpkr	ryone's nerves; this sh D)	culd be done by a				
	49 # from bein 50 # continues 51 # really ne 52 birthing	ng initialised (Ubuntu: #29 s to build and is installab reded.	1750). Blacklist so the le for the few cases wh	t the driver ere its				
	SI blacklist r	nouveau	Plain Ted. • Ta	b width 8 • U	53, Col 18		• 0	18

• Run the command: update-initramfs -u



- Reboot the system: reboot
 - Once your system reboots, open a terminal window and:
 - Log in as root: sudo su
 - Run the command: apt-get update



• Install gcc: apt-get install gcc



• Install make: apt-get install make



• Install linux-headers: apt-get install -y linux-headers*



• Stop x-windows by using the command: init 3



• Log in as root and redirect to the directory where the Nvidia driver is located.



 Make the Nvidia installer an executable by the command- chmod +x NVIDIA-Linux-x86-64-* And run the Nvidia driver by- ./NVIDIA-Linuxx86_64-430.50.run



• Select Continue installation.



• Wait until the kernel modules are completely built.



• Select Yes for installing 32-bit compatibility libraries.

stall NVIDIR's 32-bit compatibility libra	ries?	Ho	

• Wait until the installation is complete.

	NVIDIR Recelerated Graphics Oriver for Linux-x86_64 (448.64)
Installing 'NVIDIA Accelerated Graphics Driver	- for Linux−x86_64' (440.64);
executing: `/usr/sbin/depmod -a ` (this may ta	ske a moment) 99%

• Select Yes to run nvidia-xconfig utility to automatically update your X configuration file.

	NVIDIA Accelerated Graphics Driv	er for Linux-x86_64 (448.64)	
			the second community
ld you like to run the nvidia-> Bou pre-existing X configurat	config utility to automatically update your X	configuration file so that the NVIDIA X driver (will be used when you resta
ning pre-existing in contrigerous		No	

• Select OK once the X configuration file gets updated successfully.

NVIDIA Ac	celerated Graphics Driver for Linux-x86_64 (440.64)
Your X configuration file has been successfully updated. complete.	Installation of the NVIDIA Accelerated Graphics Driver for Linux-x86_64 (version: 440.64) is now
NVIDIA Software Installer for Unix/Linux	uuu.nvidia.com ا

• Execute the following command to verify the Nvidia driver is loaded: nvidiasmi

M	IDIA	a−SMI	440.3	1	Driver	Version	: 440.	31	CL	UDA Versio	on: 10.2
GI Fa	10 M	lame Cemp	Perf	Persis Pwr:Us	stence–M sage/Cap	I Bus-Id	Memo	Disp.A ry-Usage	1	Volatile GPU-Util	Uncorr. ECC Compute M.
N,	0 (A	Juadro 49C	5 T1 00 P0	0 7W	Off ∕ N∕A	00000000000000000000000000000000000000	00:01: 1iB /	00.0 Off 3908MiB		0%	N∕f Default
Pr	oces	ses:	PID	Tupe	Proces	s name					GPU Memory Usage

• Reboot the system.

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Revision History

Version	Date	Author	Changes/Updates
1.1	7/12/2022	Aleksandr Panteleev	Added support for P360 Ultra
1.0	5/17/2022	Aleksandr Panteleev	Initial launch release