ThinkStation Chassis Wheels

Lenovo ThinkStation PX, P8, P7

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Overview

Some industry applications for ThinkStation Workstations require physical mobility of the system, which can be a strenuous task since these systems can weigh over 30kgs(66lbs) when fully configured. ThinkStation Chassis Wheels are a compact, simple, and toolless way to add mobility to ThinkStation Workstations. The ThinkStation Chassis Wheels consist of two identical assemblies, each made of parts purchased from online vendors that are then assembled onto a 3D printed base. These two assemblies then toollessly attach to the front and rear bottom handles of the ThinkStation Workstation to provide mobility to the system. This whitepaper enables ThinkStation PX, P8, and P7 users to 3D print, assemble, and install their own ThinkStation Chassis Wheels.

Disclosures:

- ThinkStation Chassis Wheels are not an officially supported Lenovo product. Users, therefore, assume their own risk in assembling, installing, and using the wheel assemblies. Lenovo assumes no responsibility for any damage to the ThinkStation Workstation during installation or usage of the wheels.
- ThinkStation Chassis Wheels are intended for indoor use only on tile, carpet, or similar surfaces. Users should be cautious with uneven surfaces such as threshold transition strips as the wheels are simple casters and do not include shock absorption.

Section 1 — Purchased Parts

Before assembly, parts will need to be procured. ThinkStation Chassis Wheels require both purchased and 3D printed parts.

Table 1 contains the parts that are required to be purchased online, hyperlinks are provided in column1:

Table 1 – Purchased Parts

Type	Name	Specs	Vendor	Quantity
Casters*	Nefish 1.5 Inch Caster Wheels	Surface mount 1.8”x1.54” plate w/ 1.35”x1.06” screw holes 1.5” wheel dia. 2.08” total height	Amazon	1 Pack (4 Casters)
Thumbscrews	5/16” – 18x ¾” Red Tee / Wing	5/16” thread dia. 18 UNC pitch 3/4” long 1.5” head dia.	Thumbscrew Depot	4 Count
Screws	Phillips Rounded Head Thread-Forming Screw for Plastic	#8 size 3/8” long Philips #2 drive 16 TPI	McMaster-Carr	16 (Sells in packs of 25)

*Do not use the screws that come with the Amazon caster set.

Section 2 — 3D Printed Parts

The base of The ThinkStation Chassis Wheels is a 3D printed part. Download the appropriate 3D print file from the ThinkStation Customer Solutions website where this whitepaper is located. Users should print two of each part, one for the front and one for the rear.

Note: There are different 3D printed parts for different ThinkStation Workstation models. Refer to *Table 2* for the appropriate 3D file to print for each ThinkStation Workstation model.

Table 2 – Matching 3D File to ThinkStation Model

ThinkStation	File Name
PX	thinkstationchassiswheels_px.stp
P8	thinkstationchassiswheels_p7_8.stp
P7	thinkstationchassiswheels_p7_8.stp

Important 3D Printing Notes:

- ABS or PC-ABS is the recommended material.
- 100% infill density is recommended.
- For best results use a 3D printer that also prints easily removable structural support material.

Section 3 -- Assembly Instructions

Prior to beginning assembly, ensure that you have procured the following parts listed in Sections 1 and 2:

Table 3 – Summary of Parts

Part	Quantity
Casters	4
Thumbscrews	4
Screws	16
3D Printed Base	2

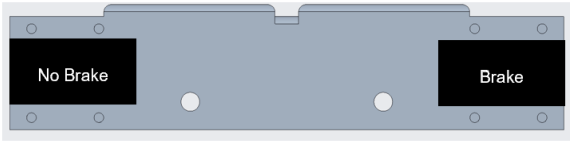
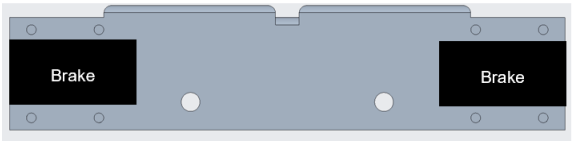
Instructions:

Note: The ThinkStation Chassis Wheels consist of two identical assemblies, one for the front of the chassis, and one for the rear. The following instructions cover one assembly, repeat steps 1 & 2 to create the second.

Step 1: Caster Assembly

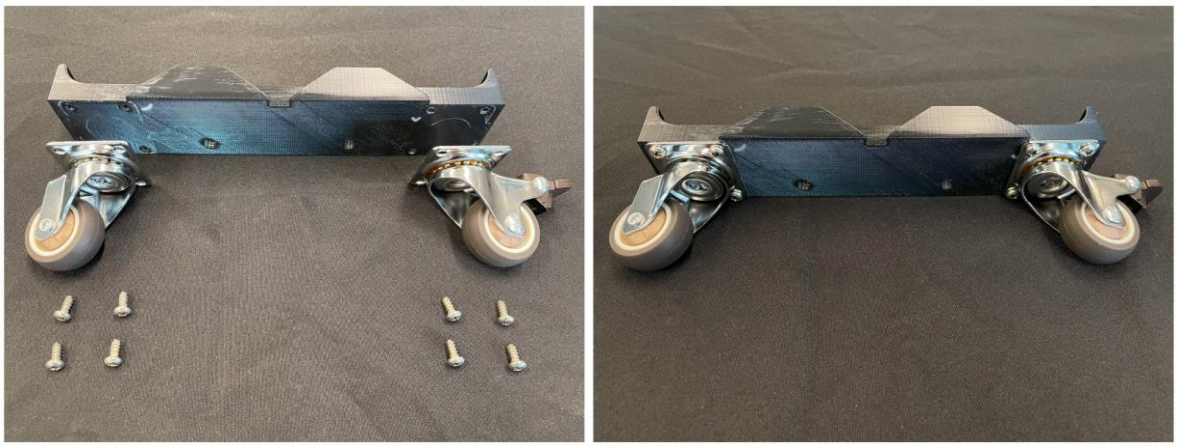
*Caution: There are two different caster types in the set, two with brakes and two without. *Table 4* shows the acceptable installation location options for each caster type.

Table 4 – Acceptable Caster Installation Locations

Acceptable	Not Acceptable
	
OR	**OR**
	

1a) Screw the Casters into the bottom of the 3D Printed Base as shown in *Figure 1*.

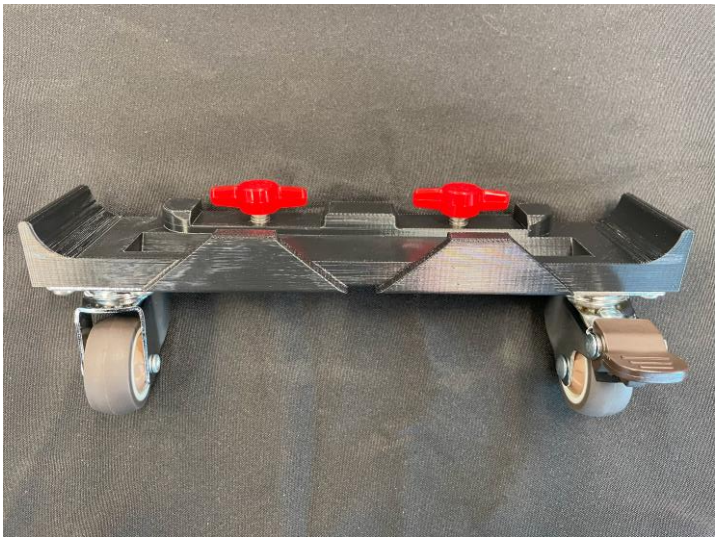
Figure 1 – Casters Screwed into 3D Printed Base



Step 2: Thumbscrew Assembly

2a) Press the Thumbscrews into the top of the 3D Printed Base until they stop, they should insert about 1cm. Then, rotate the Thumbscrews clockwise to self-thread them through 3D Printed Base like shown in *Figure 2*, until the bottom of the screws reach the bottom of the base.

Figure 2 – Thumbscrews threaded into 3D Printed Base

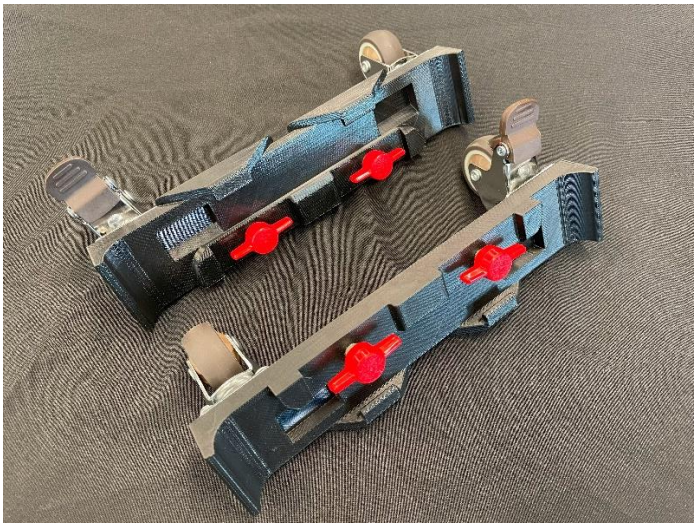


2b) (Optional) If the Thumbscrews are difficult to turn, repeatably screw and unscrew the Thumbscrew to form the thread in the 3D print better. This issue may arise depending on the tolerance of the 3D printer used to make the 3D Printed Base.

Step 3: Repeat for Second Assembly

3a) The ThinkStation Chassis Wheels consist of two identical assemblies, repeat steps 1 & 2 to make both assemblies. The final assemblies should resemble *Figure 3*.

Figure 3 – Final Assemblies



Section 4 -- Installation Instructions

Once you have assembled the ThinkStation Chassis Wheels, it is time to install them on your ThinkStation workstation. The ThinkStation Chassis Wheels utilize the chassis' handles for proper retention and weight distribution.

Instructions:

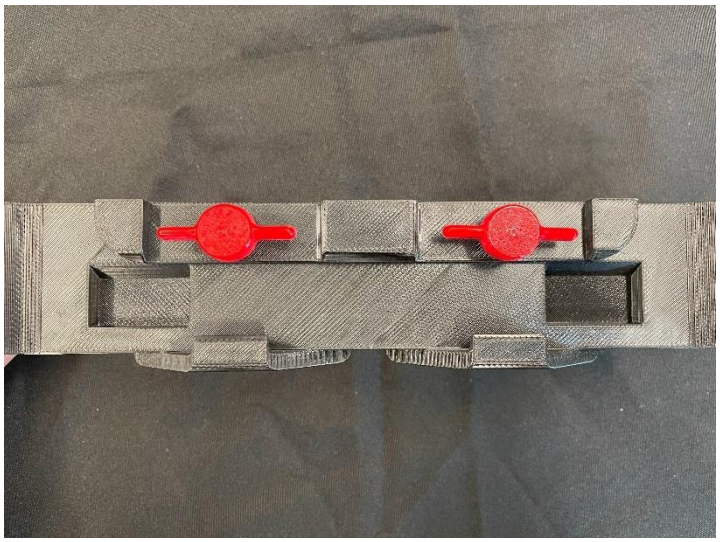
Note: Installation of the wheel assemblies on the front and rear handles are identical. The following instructions cover one installation, repeat steps 1-3 to install the other.

Step 1: Prepare the Wheel Assemblies

1a) Ensure that the caster with the brake is in the locked position so that the wheel cannot turn.

1b) Ensure that the Thumbscrews are turned so the wings are parallel to the 3D Printed Base as shown in *Figure 4*.

Figure 4 – Proper Thumbscrew Orientation



Step 2: Insert Wheel Assembly

2a) Choose to install either the front or rear wheel assembly.

2b) Lift the chosen side of the chassis slightly off the ground like in *Figure 5*.

Note: The chassis will need to remain lifted throughout installation. It may be helpful to get assistance from another person so that one person can lift the chassis while the other installs the wheel assemblies.

Figure 5 – Chassis Lifted

2c) With the chassis lifted, insert one of the wheel assemblies by engaging the outer flanges with the outside of the handle and rotating the base of the assembly under the chassis. Refer to *Figure 6* for details.

Figure 6 – Inserting Wheel Assembly

Step 3: Secure Wheel Assembly

3) Turn the Thumbscrew clockwise until it engages the top of the chassis handle like in *Figure 7*. The wing of the Thumbscrew should be perpendicular to the handle as shown.

Note: The Thumbscrew should engage the top of the handle with a light friction fit. It is not necessary to strongly tighten the Thumbscrew as this may cause damage to the handle.

Figure 7 – Engaging the Thumbscrew

Step 4: Repeat for Second Assembly

4) Installation of the wheel assemblies on the front and rear handles are identical. Repeat steps 1-3 to install both. The final assemblies should resemble *Figure 8*.

Note: Install both wheel assemblies one after the other in short succession. A single wheel assembly is not designed to support the weight of the chassis for a long time. Installing the second quickly will properly distribute the weight and allow for the ThinkStation Chassis Wheels to be used as intended.

Figure 8 – Final Installation

Removal:

To remove the chassis wheels:

1) Quarter-turn the Thumbscrews until they resemble their position in *Figure 4*. It is not necessary to unscrew the Thumbscrews all the way. This will allow for simple re-installation.

2) Lift the chassis slightly off the ground.

3) Rotate the wheel assembly to unhinge it from the handle and remove.

4) Repeat for the other wheel assembly.

Revision History

Version	Date	Author	Changes/Updates
1.0	3/18/2025	Bryan	Initial Draft