

TECHNICAL BRIEF THINKPAD MULTIPLE MONITOR CONFIGURATIONS USING NVIDIA OPTIMUS TECHNOLOGY



ThinkPad® discrete graphics systems with NVIDIA® Optimus™ technology enable attachment of additional monitors for improved user productivity. This allows more applications and data to be viewed across multiple monitors. Each monitor is independent from all other monitors.

The monitor ports on the ThinkPad system and ThinkPad Mini Docks allow attachment of additional monitors, thereby creating triple and quad multiple monitor configurations.

The following are the monitor ports located on the ThinkPad T and W Series systems and ThinkPad Mini Docks:

- ThinkPad T, W: one VGA analog and one DisplayPort
- ThinkPad Mini Dock Series 3 (4337): one VGA analog, one DisplayPort, and one DVI-D
- ThinkPad Mini Dock Plus Series 3 (4338): one VGA analog, two DisplayPort, and two DVI-D

The following pages have tables that describe the supported monitor configurations.

For triple monitor configurations, the tables have configuration information on attaching the 2nd and 3rd display along with the ThinkPad integrated 1st display. For quad monitor configurations, the tables have configuration information on attaching the 2nd, 3rd and 4th display along with the ThinkPad integrated 1st display.

All multiple monitor configurations described within this document require Microsoft® Windows® 7.



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THINKPAD WITH THINKPAD MINI DOCK SERIES 3 (4337) TRIPLE MULTIPLE MONITORS

THINKPAD T420, T420s, T520, W520			THINKPAD MINI DOCK SERIES 3 (4337)		
Display (1920x1080)	VGA (2048x1600)	DisplayPort (2560x1600)	VGA (2048x1536)	DisplayPort (2560x1600)	DVI-D Digital (1920x1200)
1 ST	2 nd	3 rd			
1 ST			2 nd	3 rd	
1 ST			2 nd		3 rd
1 ST		2 nd	3 rd		
1 ST		2 nd		3 rd	
1 ST		2 nd			3 rd

THINKPAD T410, T410s, T510			THINKPAD MINI DOCK SERIES 3 (4337)		
Display (1920x1080)	VGA (2048x1600)	DisplayPort (2560x1600)	VGA (2048x1536)	DisplayPort (2560x1600)	DVI-D Digital (1920x1200)
1 ST			2 nd		3 rd
1 ST		2 nd		3 rd	
1 ST		2 nd			3 rd



QUAD MULTIPLE MONITORS

THINKPAD T420, T420s, T520, W520			THINKPAD MINI DOCK SERIES 3 (4337)		
Display (1920x1080)	VGA (2048x1600)	DisplayPort (2560x1600)	VGA (2048x1536)	DisplayPort (2560x1600)	DVI-D Digital (1920x1200)
1 ST		2 nd	3 rd	4 th	
1 ST		2 nd	3 rd		4 th
1 ST		2 nd		3 rd	4 th
1 ST			2 nd	3 rd	4 th

THINKPAD T410, T410s, T510			THINKPAD MINI DOCK SERIES 3 (4337)		
Display (1920x1080)	VGA (2048x1600)	DisplayPort (2560x1600)	VGA (2048x1536)	DisplayPort (2560x1600)	DVI-D Digital (1920x1200)
1 ST			2 nd	3 rd	4 th



Notes: The tables include the monitor resolution for the ThinkPad system, ThinkPad and Dock monitor ports. VGA analog or DVI digital monitors can be attached to DisplayPort using DisplayPort monitor cables.

REAR VIEW OF THINKPAD MINI DOCK SERIES 3 (4337)





THINKPAD WITH THINKPAD MINI DOCK PLUS SERIES 3 (4338) TRIPLE MULTIPLE MONITORS

THINKPAD T420, T420s, T520, W520			THINKPAD MINI DOCK PLUS SERIES 3 (4338)				
Display (1920x1080)	VGA (2048x1600)	DisplayPort (2560x1600)	VGA (2048x1536)	DisplayPort #1 (2560x1600)	DVI-D Digital #1 (1920x1200)	DisplayPort #2 (2560x1600)	DVI-D Digital #2 (1920x1200)
1 ST	2 nd	3 rd					
1 ST			2 nd	3 rd			
1 ST			2 nd		3 rd		
1 ST			2 nd			3 rd	
1 ST		2 nd	3 rd				3 rd
1 ST		2 nd		3 rd			
1 ST		2 nd			3 rd		
1 ST		2 nd				3 rd	
1 ST		2 nd					3 rd
1 ST				2 nd		3 rd	
1 ST				2 nd			3 rd
1 ST					2 nd	3 rd	
1 ST					2 nd		3 rd

THINKPAD T410, T410s, T510			THINKPAD MINI DOCK PLUS SERIES 3 (4338)				
Display (1920x1080)	VGA (2048x1600)	DisplayPort (2560x1600)	VGA (2048x1536)	DisplayPort #1 (2560x1600)	DVI-D Digital #1 (1920x1200)	DisplayPort #2 (2560x1600)	DVI-D Digital #2 (1920x1200)
1 ST			2 nd	3 rd			
1 ST			2 nd		3 rd		
1 ST			2 nd			3 rd	
1 ST			2 nd				3 rd
1 ST		2 nd		3 rd			
1 ST		2 nd			3 rd		
1 ST		2 nd				3 rd	
1 ST		2 nd					3 rd
1 ST				2 nd		3 rd	
1 ST				2 nd			3 rd
1 ST					2 nd	3 rd	
1 ST					2 nd		3 rd

Notes: The tables include the monitor resolution for the ThinkPad system, ThinkPad and Dock monitor ports. VGA analog or DVI digital monitors can be attached to DisplayPort monitor cables.



**THINKPAD WITH
THINKPAD MINI DOCK PLUS SERIES 3 (4338)
QUAD MULTIPLE MONITORS**

THINKPAD T420, T420s, T520			THINKPAD MINI DOCK PLUS SERIES 3 (4338)				
Display (1920x1080)	VGA (2048x1600)	DisplayPort (2560x1600)	VGA (2048x1536)	DisplayPort #1 (2560x1600)	DVI-D Digital #1 (1920x1200)	DisplayPort #2 (2560x1600)	DVI-D Digital #2 (1920x1200)
1 ST		2 nd	3 rd	4 th			
1 ST		2 nd	3 rd		4 th		
1 ST		2 nd	3 rd			4 th	
1 ST		2 nd	3 rd				4 th
1 ST		2 nd		3 rd			4 th
1 ST		2 nd			3 rd		4 th
1 ST		2 nd			3 rd	4 th	
1 ST			2 nd	3 rd		4 th	
1 ST			2 nd	3 rd			4 th
1 ST			2 nd		3 rd	4 th	
1 ST			2 nd		3 rd		4 th

THINKPAD T410, T410s, T510			THINKPAD MINI DOCK PLUS SERIES 3 (4338)				
Display (1920x1080)	VGA (2048x1600)	DisplayPort (2560x1600)	VGA (2048x1536)	DisplayPort #1 (2560x1600)	DVI-D Digital #1 (1920x1200)	DisplayPort #2 (2560x1600)	DVI-D Digital #2 (1920x1200)
1 ST		2 nd		3 rd			4 th
1 ST		2 nd			3 rd		4 th
1 ST		2 nd			3 rd	4 th	
1 ST			2 nd	3 rd		4 th	
1 ST			2 nd	3 rd			4 th
1 ST			2 nd		3 rd	4 th	
1 ST			2 nd		3 rd		4 th

Notes: The tables include the monitor resolution for the ThinkPad system, ThinkPad and Dock monitor ports.
VGA analog or DVI digital monitors can be attached to DisplayPort using DisplayPort monitor cables.

REAR VIEW OF THINKPAD MINI DOCK PLUS SERIES 3 (4338)



NVIDIA® OPTIMUS™ TECHNOLOGY

Optimus technology conserves ThinkPad system battery power by automatically switching to the built-in NVIDIA® graphics card only when the graphics power is needed by the application.

Optimus™ technology also offers additional multiple monitor capability for triple and quad monitor configurations.

Optimus technology is available on select discrete graphics models of the ThinkPad T410, T410s, and T510 systems and all discrete graphics models of the ThinkPad T420, T420s, T520, and W520 systems.

Optimus™ technology requires Microsoft® Windows® 7.

For more information go to:

www.nvidia.com/object/notebook-nvs.html

www.lenovo.com/optimizedforbusiness

www.nvidia.com/optimus

<http://windows.microsoft.com/en-us/windows7/Move-windows-between-multiple-monitors>



THINKPAD MINI DOCK SYSTEM COMPATIBILITY

THINKPAD MINI DOCK	THINKPAD T, W SERIES SYSTEM COMPATIBILITY
ThinkPad Mini Dock Series 3 - 90W (4337-10U)	T410, T410s, T420, T420s, T520 Dual-Core models
ThinkPad Mini Dock Plus Series 3 - 90W (4338-10U)	T410, T410s, T420, T420s, T520 Dual-Core models
ThinkPad Mini Dock Plus Series 3 - 170W (4338-30U)	T410, T410s, T420, T420s, T520 all models, W510, W520

For more information go to: www.lenovo.com/docks

DISPLAYPORT MONITOR CABLES

DisplayPort monitor cables allow attachment of a DVI digital monitor or VGA analog monitor to ThinkPad or ThinkPad Mini Dock DisplayPort monitor ports.

DisplayPort monitor cables support 1920x1200 monitor resolution.

DisplayPort Monitor cables include:

- Lenovo DisplayPort to Single-Link DVI Digital Monitor Cable (45J7915)
- Lenovo DisplayPort to VGA Analog Monitor Cable (57Y4393)

For more information go to: www.lenovo.com/support/displayport-cables



THINKVISION MONITORS

ThinkVision monitors are offered in various monitor sizes, and with different combinations of video inputs: VGA analog, DVI digital and DisplayPort.

For more information, go to:

www.lenovo.com/thinkvision

www.lenovo.com/support/monitors

For more information
www.lenovo.com

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