

Using Tri-mode NVMe HBA/RAID card with MB699VP-B / MB601VK-B / MB601VK-1B / MB601M2K-1B / MB720M2K-B / MB833M2K-B / MB834M2K-B

After thorough testing, it has been revealed that there is a compatibility issue when using the ToughArmor MB699VP-B / MB601VK-B / MB601VK-1B / MB601M2K-1B / MB705M2P-B / MB720M2K-B / MB833M2K-B / MB834M2K-B with certain Intel and Broadcom **Tri-Mode** HBA and RAID cards. The issue is caused by PCIe card manufacturers using a different pinout for Tri-Mode cards than is typically used for U.2 connections. When using the Tri-Mode cards with U.2/M.2 NVMe drives, a **U.2 enabler cable must be used** for Tri-Mode card to detect the U.2/M.2 drive, which reverts the pinout back to standard U.2 specifications.

Broadcom has listed some cautionary steps that should be taken to ensure compatibility and to avoid damage to drives, RAID cards, and enclosures:

- For PCIe / NVMe connections, use the appropriate **U.2 enabler cable** to enable connection to the backplane connectors. The U.2 enabler cable routes the REFCLK, sidebands, and PCIe signals to the appropriate pins on the backplane connector.
- Using standard 12Gb/s SAS cables for NVMe connections might result in damage to the PCIe adapter or the drive.

This issue is currently known to affect the following Tri-Mode HBA and RAID cards. You can find the compatible U.2 enabler cable model # from the tables below:

Compatible U.2 enabler cable for ToughArmor MB699VP-B / MB720M2K-B / MB833M2K-B / MB834M2K-B + Tri-Mode cards	
Tri-Mode Controller Card Model#	U.2 Enabler Cable Model#
Broadcom HBA 9400-16i	-Broadcom 05-50061-00, U.2 Enabler Cable, Mini SAS HD (x8) to 2 x4 Mini SAS HD(W), 1.M -Serial Cables PCI-43X8-43X2i-1M-N2, U.2 Enabler Cable, Mini SAS HD (x8) to 2 x4 Mini SAS HD(W), 1M -Serial Cables PCI-43X8-43X2i-0.5M-N2, U.2 Enabler Cable, Mini SAS HD (x8) to 2 x4 Mini SAS HD(W), 0.5M
Broadcom HBA 9405W-16i	
Broadcom HBA 9400-8i	
Broadcom HBA 9400-8i8e	
Broadcom MegaRAID 9460-16i	
Broadcom MegaRAID 9480-8i8e	
Broadcom MegaRAID 9460-8i	
Broadcom MegaRAID 9440-8i	
Intel RAID RSP3TD160F	
Intel RAID RSP3MD088F	
Intel RAID RSP3WD080E	
Intel RAID RSP3DD080F	
Intel RAID RMSP3AD160F	
Intel RAID RMSP3CD080F	
Intel RAID RMSP3HD080E	

Compatible U.2 enabler cable for ToughArmor MB601VK-B / MB601VK-1B / MB601M2K-1B / MB705M2P-B + Tri-Mode cards	
Tri-Mode Controller Card Model#	U.2 Enabler Cable Model#
Broadcom HBA 9400-16i	-Broadcom 05-50065-00, U.2 Enabler Cable, Mini SAS HD (x8) to 2 x4 SFF-8639, 0.5M -Broadcom 05-50064-00, U.2 Enabler Cable, Mini SAS HD (x8) to 2 x4 SFF-8639, 1M -Serial Cables BWD-43X8-39X2-1M, U.2 Enabler Cable, Mini SAS HD (x8) to 2 PCIe Multilink SFF-8639, 1M -Serial Cables BWD-43X8-39X2-0.5M, U.2 Enabler Cable, Mini SAS HD (x8) to 2 PCIe Multilink SFF-8639, 0.5M
Broadcom HBA 9405W-16i	
Broadcom HBA 9400-8i	
Broadcom HBA 9400-8i8e	
Broadcom MegaRAID 9460-16i	
Broadcom MegaRAID 9480-8i8e	
Broadcom MegaRAID 9460-8i	
Broadcom MegaRAID 9440-8i	
Intel RAID RSP3TD160F	
Intel RAID RSP3MD088F	
Intel RAID RSP3WD080E	
Intel RAID RSP3DD080F	
Intel RAID RMSP3AD160F	
Intel RAID RMSP3CD080F	
Intel RAID RMSP3HD080E	

For more information regarding the Tri-mode and where to purchase the U.2 enabler cable, please contact your HBA or RAID card manufacturer.