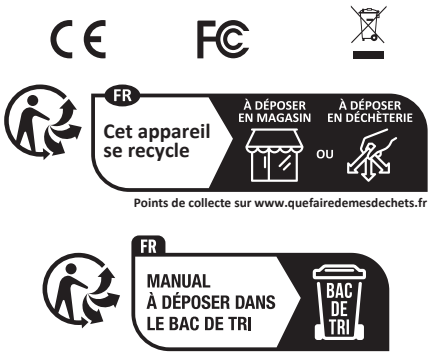
Declaration of conformity
Products with a CE symbol fulfill the EMC directive (2014/30/EU) and RoHS directive (2011/65/EU+2015/863+2017/2102), which were released by the EU-comission.
The declaration of conformity can be downloaded here:
https://www.delock.de/produkte/G_61062/merkmale.html

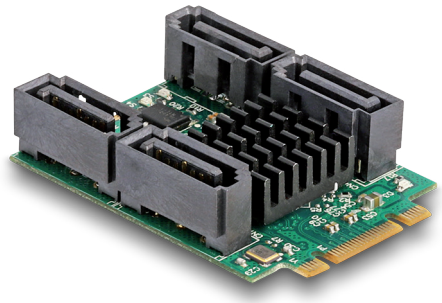
WEEE-notice
The WEEE (Waste Electrical and Electronic Equipment)-directive, which became effective as European law on February 13th 2003, resulted in an all out change in the disposal of disused electro devices. The primarily purpose of this directive is the avoidance of electrical waste (WEEE) and at the same time the support of recycling and other forms of recycling in order to reduce waste. The WEEE-logo on the device and the package indicates that the device should not be disposed in the normal household garbage. You are responsible for taking the disused electrical and electronical devices to a respective collecting point. A separated collection and reasonable recycling of your electrical waste helps handling the natural resources more economical. Furthermore recycling of electrical waste is a contribution to keep the environment and thus also the health of men. Further information about disposal of electrical and electronical waste, recycling and the collection points are available in local organizations, waste management enterprises, in specialized trade and the producer of the device.



EU Import: Tragant Handels- und Beteiligungs GmbH
Beeskowdamm 13/15, 14167 Berlin, Germany

User manual

Converter with RAID and HyperDuo M.2 Key B+M male to 4 x SATA male



* Other languages are online available

Product-No: 61062
User manual no: 61062-a
www.delock.com

English

Description
This converter by Delock expands the system by four SATA ports. When using more than one SATA port, there is the possibility to use different RAID modes. The converter supports a hyperduo function. With this function it combines an SSD and an HDD to use the advantages of both data mediums, the speed of an SSD and the capacity of an HDD.

Specification
- Connectors:
  1 x M.2 key B+M male
  4 x SATA 6 Gb/s 7 pin plug
- Chipset: Marvell
- Interface: PCIe 2.0
- Form factor: M.2 3042
- Suitable for M.2 slot with key M or B+M based on PCIe
- Data transfer rate up to 6 Gb/s
- Supports RAID 0, 1, 10, JBOD, HyperDuo Virtual Disk (Safe/Capacity)
- Supports HDD and SSD
- Supports Native Command Queuing (NCQ)
- Bootable
- Dimensions (LxWxH): ca. 42 x 30 x 13 mm

System requirements
- Linux Kernel 5.15 or above
- Windows 10/10-64/11
- Windows Server 2019
- A free M.2 key M or key B slot

Package content
- Converter
- User manual

Safety instructions
- Protect the product against moisture
- Avoid anti-static electricity when installing the card

Hardware Installation
1. Turn off your PC and unplug the power cord.
2. Open the housing.
3. Insert the M.2 module straight and carefully into the free slot and srcew it.
4. Connect your HDDs or SSDs to the SATA 7 pin port on the M.2 module, therefor use your existing SATA cables.
5. Reattach the housing and connect the power cord to the AC adapter.

Installation
1. When the installation of the device is finished, the M.2 module will be automatically installed after you restart the computer.
2. You can now start to use the device.

Marvell BIOS Utility (MBU) for RAID / HyperDuo Setup
Warning: All data on the memory associated with article 61062 will be erased irretrievably.

To create a RAID/HyperDuo virtual disk:
Skip this section if you are not going to create a RAID/HyperDuo virtual disk.

1. Start your Computer.
2. Press the [Ctrl] + [M] key on the keyboard at the same time to enter the MBU.
3. Once the MBU is entered, scroll to HBA0: Marvell 0 in the Topology pane by the up and arrow key on the keyboard and press Enter.
4. Choose Configuration Wizard and press Enter to start creating the RAID/ HyperDuo virtual disk.
5. Select the free physical disks available by using the arrow keys to scroll through the disks and press Space Bar.
6. After selecting all the disks needed, press Enter to continue.
7. Choose the RAID option:
   RAID Level: RAID 0 – Stripping
   RAID 1 – Disk Mirroring
   RAID 10 – Stripe of Mirrors
   Stripe Size: 32K, 64K
   It defines the size of the single data block on the virtual disk. The larger the stripe size, the longer it takes to read and write data blocks on the physical disks. A large size is recommended for applications requiring large data transfers, e.g. audio, video and graphics. A smaller size is suitable for applications with smaller size files, e.g. emails and documents.
8. Name: any value for the users to input. Input a user defined identifier for the virtual disk.
9. Choose the HyperDuo option:
   HyperDuo Mode: Safe – Mirrored Protection
   Capacity – Cost-Optimized
   Keep original data: Yes, No (Only available in Safe mode)
   Preserve the data currently on your HDD or erase all data.
10. Threshold(%): 10-100 for the users to input
    The number defines the percentage of your SSD the MBU uses to optimize performance. Default is 90.
11. Choose Next and press [Y] key to start creating the virtual disk.
12. Press F10 and [Y] key to exit the MBU.

Note: A HyperDuo virtual disk must at least contain one SSD and one HDD.

To rebuild a virtual disk:
1. When a hard disk in a RAID 1 virtual disk or a SSD in a HyperDuo Safe mode virtual disk is defective or the data inside are corrupted, the Marvell BIOS Utility (MBU) will mark the virtual disk as Degrade.
2. Replace the defective hard disk/SSD with an identical hard disk/SSD or a hard disk/SSD which has a smaller size within the allowable value set for the virtual disk.
3. Press the [Ctrl] + [M] key on the keyboard at the same time to enter the MBU.
4. In the Topology pane, scroll to the Virtual Disks ID, press Enter and select the Rebuild option.
5. Select the available replacement hard disk/SSD to be rebuilt to by pressing Space Bar and then Enter.
6. Press [Y] key to start. The utility will show the rebuild status and the completed percentage. This will take a long time to finish the whole process and it depends on the size to be rebuilt.

Note: HyperDuo virtual disk created in Safe mode can be partially rebuilt if the SSD fails, but not if the HDD fails.

Marvell Storage Utility (MSU) for RAID/HyperDuo Setup
The Marvell Storage Utility (MSU) is a browser-based management utility for Marvell 88SE92xx controllers. It creates and manages a RAID or HyperDuo virtual disk using storage devices connected to the 88SE92xx controller.

1. Switch on your computer.
2. Put the driver CD in the CD ROM drive.
3. Open Windows Explorer, select: CD-drive\Marvell\88SE9230\Utility\ MSUSetup.exe.
4. Double click the desktop shortcut for the MSU.
5. When opening the MSU in some versions of Windows, Internet Explorer may detect a problem with the security certificate for the MSU web page. Select Continue to this website (not recommended) to continue opening the MSU.
6. Opening the MSU will take you to a login page. If you have no password, leave this field blank, and then click Login.
7. After entering the MSU user interface, select Adapter, which contains four physical disks, assume four physical disks are connected to the controller card.
8. Roll over the Operation tab and you will see Create HyperDuo, Create RAID and Quick Create Wizard.
9. To create a HyperDuo virtual disk, you should have at least one HDD and one/multiple SSD.
10. Select Create HyperDuo, and then select Safe mode or Capacity mode.
11. Check Keep Original Data to preserve the data currently on your HDD or uncheck it to erase all data. This option is only available in Safe mode.
12. Threshold(%): 10-100 for the users to input
13. The Threshold (%) number defines the percentage of your SSD the MSU uses to optimize performance. The default is 90.
14. Press Submit.
15. The MSU displays the Property tab for the HyperDuo virtual disk and begins initialization. It takes up to some minutes to complete. System performance may slow during this period.

1. If you want to quickly create a HyperDuo virtual disk, select Quick Create Wizard.
2. Select Safe mode or Capacity mode, and then press Submit. The MSU will help you create the HyperDuo virtual disk automatically.

1. To create a RAID virtual disk, select Create RAID. Then select RAID level: RAID 0, RAID 1 or RAID 10.
2. Choose enough available physical disks (RAID0 needs at least two physical disks, RAID1 just needs two physical disks, and RAID10 needs four physical disks), and press "Next".
3. Enter the name for the virtual disk, or you can use the default name.
4. Select the Initialization method for the virtual disk.
5. Select the Stripe Size 32K or 64K for the virtual disk.
6. Press Submit. The MSU creates the virtual disk and displays the Property tab for the new virtual disk.
7. Restart your computer to use the virtual disk.

Support Delock
If you have further questions, please contact our customer support
support@delock.de

You can find current product information on our homepage: www.delock.com

Final clause
Information and data contained in this manual are subject to change without notice in advance. Errors and misprints excepted.

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