

INTRODUCTION

The Cipher RAID Tower is a perfect solution for application that requires reliable storage with redundancy and also the best data security protection. Built on the Addonics field proven Storage Tower and hardware encryption solution (CipherChain, Diamond Cipher and Ruby Cipher), the family of Cipher RAID Towers is designed to provide superior performance and bullet proof AES 256-bit full disk hardware encryption at less than half of the price of similar products in the market. Not only the data is highly secured by the strong AES 256-bit encryption, the Cipher RAID Tower is simple to use and easy to deploy. There is no software to install or special training required. The FIPS certified hardware crypto engine integrated inside the Cipher RAID Tower ensures the maximum performance of the RAID system. Other than the ion of the encryption keys during the initial power up, the Cipher RAID Tower operates and performs just the same as an ordinary RAID system.



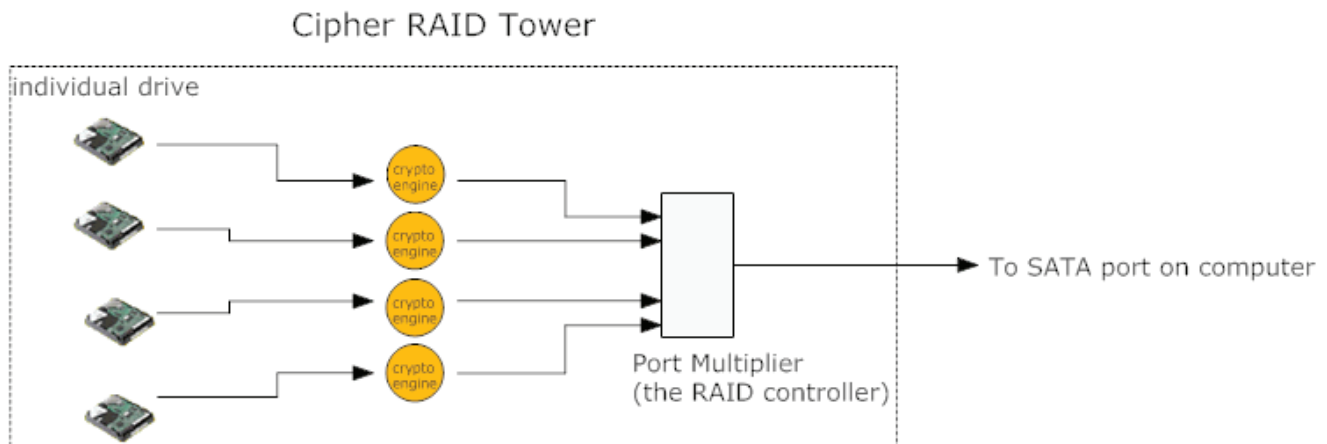
The Cipher RAID Tower comes with everything you need other than the hard drive. Designed for easy addition and removal of hard drives, you can add your choice of hard drive in any capacity. Depending on the model, the drives can be configured as RAID 0, 10 or 5. The data written to the RAID set will all be encrypted on the fly, securing all your data from unauthorized access should any drive in the RAID system is stolen. The Cipher RAID Tower can be used with any computing platform and is totally independent of any Operating System. The Cipher RAID Tower can also be connected to the new Superspeed USB 3.0 port with an optional USB 3.0 - eSATA adapter.

Addonics RAID encryption architecture

Depending on the Cipher RAID Tower model, Addonics RAID encryption are implemented in one of the following two different architectures - Drive Level Encryption (DLE) and RAID Volume Encryption (RVE). Both DLE and RVE offer strong AES 256-bit encryption but at a different price performance.

Drive Level Encryption (DLE)

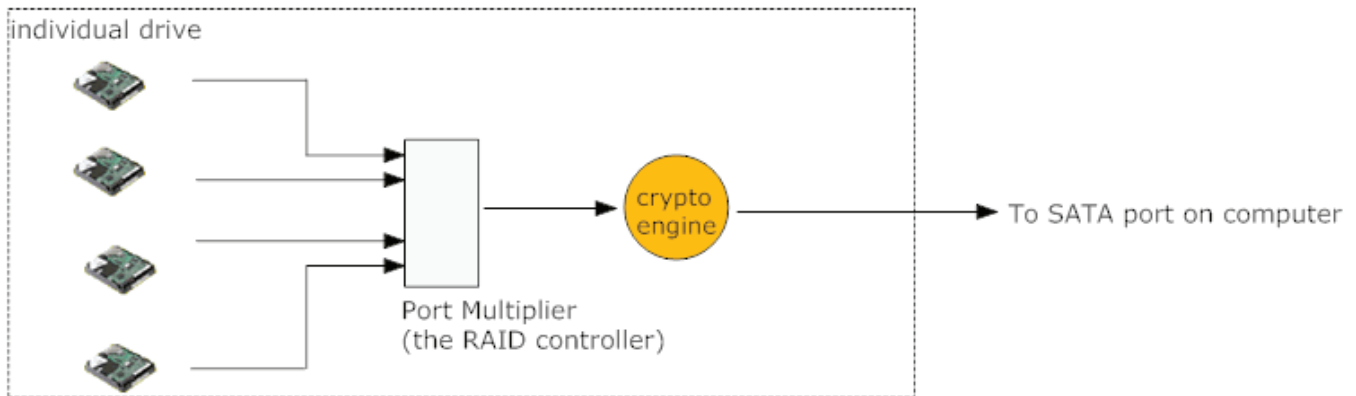
The DLV approach deploys one crypto engine per drive in the RAID set. It ensures maximum RAID performance but at a higher cost. Also the operation of the Cipher RAID Tower requires one Cipher key for each drive in the RAID group.



RAID Volume Encryption (RVE)

RVE encrypts all the drives in the RAID volume with a single crypto engine. This approach costs less than the DLV approach. Performance of the RAID is limited to the maximum throughput of the crypto engine of 150 MB/sec. Operation is simpler as only one encryption key is required to activate the RAID when it is first powered on.

Cipher RAID Tower



Below is a summary of the PROs and CONs for the two RAID architectures:

	DLE	RVE
Encryption architecture	one crypto engine per drive	one crypto engine per RAID set
Performance	maximum 300 MB/sec depending on the speed of the SATA port	Maximum 150 MB/sec
Cost	higher	lower
Operation	requires multiple Cipher keys depending on the # of drives in the RAID set	one Cipher key to activate the Cipher RAID Tower
Level of security	AES 256-bit full disk encryption, each drive can be encrypted with different cipher key code	AES 256-bit full disk encryption. Each drive uses the same Cipher key code
Recommended applications	Video editing, high performance computing that require sustained throughput over 150 MB/sec	General office server application, file back up, database, web server, email server, video server and others

FEATURES

- Install up to five 3.5" SATA hard drives of any capacity (drives not included)
- Connect all five drives to system via a single eSATA or USB 3.0 cable (connecting cables are included)
- Drive level Encryption (DLE), one cipher key per drive
- Full disk hardware encryption using a FIPS certified AES 256-bit crypto engine
- Built-in RAID accelerator for high performance
- Complete turn key solution - just add your own choice of hard drives and configure the RAID setting
- Drives are installed onto drive enclosures that can be added or removed like tape cartridge from each drive bay
- Drives can be configured as RAID0 (Striping), RAID1 (Mirroring), RAID 5 (Parity), RAID10 (Mirrored Striped), JBOD (Concatenation), Clone Mode (N-Way Mirror) using built-in hardware RAID or as five individual drives without RAID
- Individual drive setting requires connecting to Port Multiplier compatible controller or USB port
- High performance* - up to 200 MB/sec for 5 drives configured in RAID 5 using Drive Level Encryption
- RAID setting via software utility under Windows or via dip switches on the back
- OS independent, can be used on any system
- RAID diagnostic via LED light or utility software under Window
- No software to install
- No training required. Operation is totally transparent to the users
- OS independent
- Ball bearing high CFM low noise cooling fans

*This performance was measured at our lab by connecting the Cipher RAID Tower to the Addonics 8-lane PCI Express eSATA controller.

Components list made up this model:

Storage Tower V (ST5), 5X1 HPM-XU Enclosure Version (AD5HPMREU), 5 units Diamond Cipher Drive Cartridge System with AES 256-bit encryption (DCDCS256S), 5 pairs of AES 256-bit Cipher keys (AAENKEY256-2), 3 feet eSATA cable (AAESATA100C), 6 feet USB 3.0 cable (AAU3AM6F)

NOTE: As a standard set up, all cipher keys are coded the same. You may request to code them differently by leaving us a note in the instruction box at the final check out on our online store.



SPECIFICATIONS

- Built-in five (5) Diamond Cipher drive cartridge systems
- Maximum # of drives installable-
 - five 3.5" SATA hard drives or
 - five 2.5" SATA HDD/SSD using optional 2.5" - 3.5" drive adapter
- Connectors on back of the unit
 - 1 eSATA port
 - 1 USB 3.0/2.0 port
- Encryption
 - Encryption level - AES 256-bit
 - Architecture - DLE - one crypto engine per drive
 - FIPS certified crypto engine
- Integrated Port Multiplier model - AD5HPMREU
- Build in RAID accelerator
- Support type of RAID - RAID 1, 0, 10, 5, 5+S, Clone Mode
- Dip switches on back of unit for RAID configuration
- RAID monitor via Windows utility or LED lights
- Hot swap support
- OS Independent