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VxWorks Software RAID

VxWorks Software RAID

VxWorks RAID is a kernel level RAID driver optimized for VxWorks RTOS. It is compatible with any type of block device – including ATA, SATA, SCSI, USB and Fibre Channel. VxWorks RAID is a flexible configured, high-performance and easily expanded solution, making it ideal for MultiChannel Video Recorder, Bus Analyzer, High-Speed Signal Recorder and High-Resolution& Large Scale Map usage.

The VxWorks RAID Kit is a complete kit to support JBOD/RAID0/RAID1/RAID10 in VxWorks 5.5. Kit has flexible configuration interface, existing ATA and USB sub block device integration interface, and supports sub device partial capacity usage.

The VxWorks RAID Kit providing standard block device interface, can be used seamlessly with VxWorks DosFS file system and other file systems with block device interface. Kit supports unlimited sub devices per RAID device. In JBOD way, sub devices are connected seamlessly for capacity expansion; In RAID0 way, sub devices are accessed in parallel for max read/write performance; In RAID1 way, two sub devices are used to backup for each other, support real-time monitoring and taking over.

Performance and High-Available

VxWorks RAID is a high-performance RAID engine that leverages the speed of modern processors to deliver maximum performance while protecting critical data. VxWorks RAID supports RAID Levels 0, 1, 10 and JBOD (spanning). Nested RAID levels can be created using existing VxWorks RAID logical disks or by incorporating logical disks created with a hardware RAID controller. VxWorks RAID is a light-weight and small footprint stack which takes only a little CPU performance and memory. Features such realtime monitoring, hot swap, and background rebuilds maximize system uptime and minimize windows of vulnerability in the event of a sub device failure.

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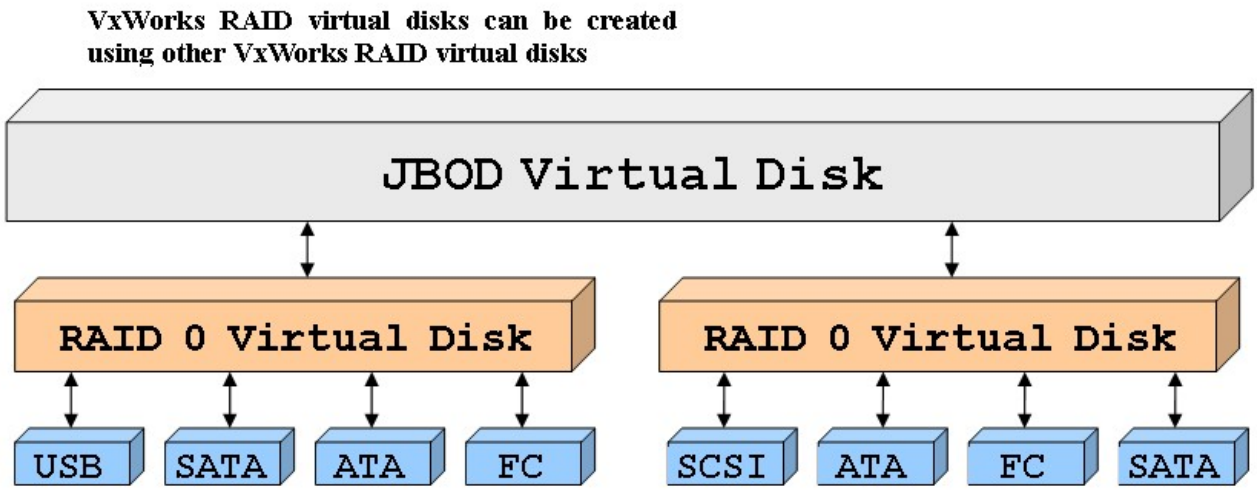
Flexibility

VxWorks RAID is perfect for applications large or small and any types of storage usage. VxWorks RAID logical disks can consist of any combination of USB, ATA, SATA, SCSI and Fibre Channel physical disks, logical disks from RAID controllers - even other VxWorks RAID logical disks. Stripe depth sizes and chunk size of each sub device are configurable to optimize performance for specific applications. If additional capacity is needed at a later time, JBOD mode makes it easy to dynamically expand more volumes.

Example of How VxWorks RAID can be used



RAID levels: JBOD (spanning), 0, 1, 10

VxWorks RAID can create a RAID set with any combination of striping, mirroring and parity, combining levels 0 and 1.

All Specifications are subject to Change without further notice

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Spare support

Any number of spare disks can be configured and dynamically added or removed.

Controller spanning

VxWorks RAID can use any number of disk controllers and create a RAID set across them.

Multi drive and array types in the same RAID set

VxWorks RAID talks to logical block devices, so it is not restricted to using whole disks. Drives can be partitioned, and individual partitions can be used as part of different RAID sets. USB, ATA, SATA, SCSI and Fibre Channel drives can be used in the same RAID set.

Set creation, rebuilds

RAID sets can be created online, no reboot is needed.
A RAID set with parity can be built in the background, while other system activity is running as usual.

Disk roaming support

VxWorks RAID configures itself using only on-disk information; it does not rely on the controller to which a disk is attached. Disks can thus be moved between controllers, or an entire set can be moved to another device.

Error recovery

VxWorks RAID can automatically rebuild failed sets, if possible. Rebuilds are possible with mirrored sets. Spare disks will be automatically selected to replace the failed component.

Hot-swap

Failed, spare, and mirror disks can be added/removed during operation.