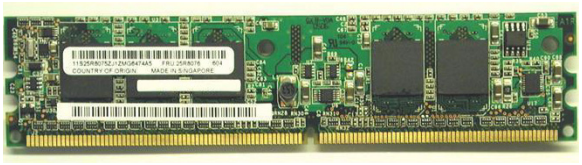
ServeRAID-MR10k
Quick Install Guide



Thank you for purchasing the ServeRAID-MR10k SAS/SATA Customized Enabler DIMM. This Serial Attached SCSI (SAS)/Serial ATA (SATA) product is a LSI1078ROC-based PCI Express RAID DIMM. Please take a few minutes to read this quick installation guide before installing the ServeRAID-MR10k SAS/SATA Customized Enabler DIMM.

If more information is needed about any topic covered in this quick install guide, refer to the other documents on the *ServeRAID-MR Support* CD. The CD contains utility programs, device drivers for various operating systems, and the following documentation:

- *ServeRAID-MR10k User's Guide*
- *ServeRAID-MR10 Software User's Guide*
- *ServeRAID-MR10 Device Driver Installation User's Guide*

OVERVIEW OF THE ServeRAID-MR10k SAS/SATA CUSTOMIZED ENABLER DIMM

The ServeRAID-MR10k SAS/SATA Customized Enabler DIMM is designed for use in the System X 3950 M2 and 3850 M2 servers. The ServeRAID-MR10k DIMM offers a flexible RAID-on-motherboard (ROMB), direct-attached storage (DAS) solution based on the LSI1078ROC.

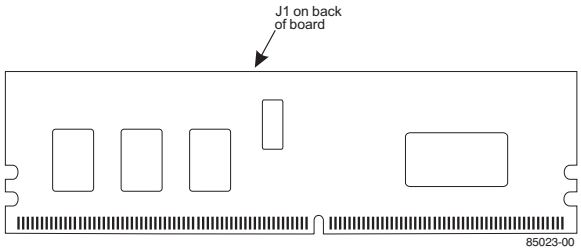
Using the ServeRAID-MR10k DIMM enables the system to operate in MegaRAID (MR) mode, which uses the MR stack, and the MR management and configuration tools. If the ServeRAID-MR10k DIMM is not installed in the system, the LSI1078ROC operates in the Integrated RAID (IR) mode, which supports RAID levels 0 and 1.

The ServeRAID-MR10k SAS/SATA Customized Enabler DIMM consists of two pieces:

- A Customized 240-pin DIMM module that includes a RAID key, which contains hardware needed to use advanced MegaRAID features
- A remote intelligent transportable battery backup unit (iTBBU)

Figure 1 displays the Customized 240-pin DIMM module that contains the RAID key. The J1 connector on the back of the DIMM connects by cable to the remote iTBBU.

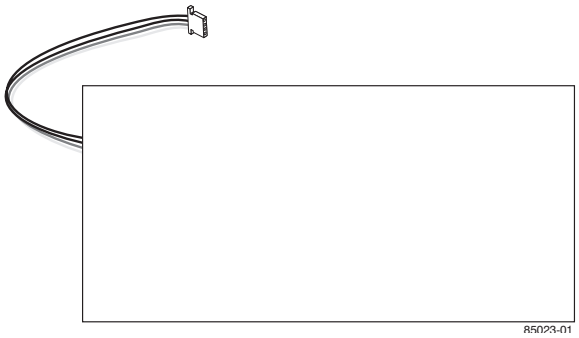
Figure 1 ServeRAID-MR10k DIMM Module



The iTBBU protects the integrity of the cached data on the ROMB controller by providing backup power if there is a complete AC power failure or a brief power outage. For more information about the battery, refer to the *ServeRAID-MR10k User's Guide* on the *ServeRAID-MR Support* CD.

Figure 2 displays the iTBBU that connects by cable to the DIMM module.

Figure 2 ServeRAID-MR10k iTBBU



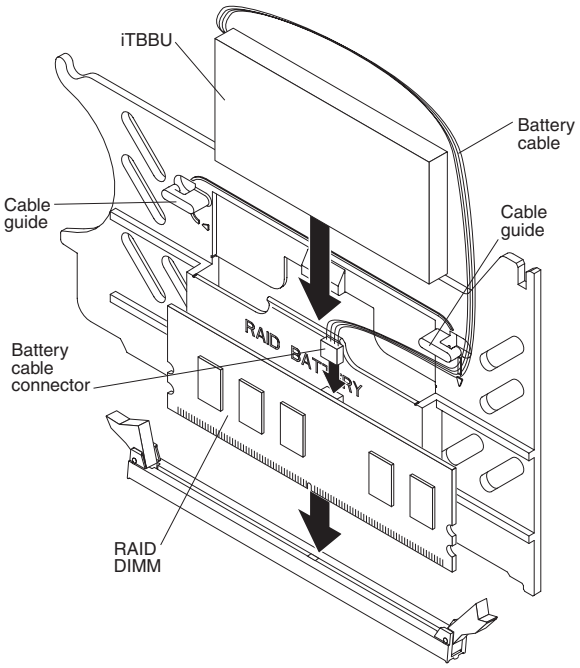
Attention: The battery in the iTBBU must charge for at least six hours under normal operating conditions. To protect your data, the firmware sets the Write Policy to *write-through* until the battery unit is sufficiently charged. When the battery is charged, the RAID DIMM changes the Write Policy to *write-back* to take advantage of the performance benefits of data caching.

ServeRAID-MR10k SAS/SATA DIMM INSTALLATION

Attention: Back up your data before you change your system configuration. Otherwise, you might lose data.

Figure 3 shows the installation of the ServeRAID-MR10k SAS/SATA Customized Enabler DIMM.

Figure 3 Installation of the ServeRAID-MR10k SAS/SATA DIMM



Perform the following steps to install the ServeRAID-MR10k SAS/SATA Customized Enabler DIMM.

Step 1 Read the safety information that begins in the preface and the installation guidelines in this section.

Step 2 Turn off the server and peripheral devices, and disconnect the power cords and all external cables as necessary to replace the device.

Important: When handling static-sensitive devices, take precautions to avoid damage from static electricity.

Step 3 Remove the server cover.

Step 4 Remove the divider that contains the battery holder from the server.

Step 5 Open the retaining clip on each end of the connector.

Step 6 Touch the static-protective package that contains the DIMM to any unpainted metal surface on the outside of the server; then, remove the DIMM from the package.

Step 7 Turn the DIMM so that the keys align correctly with the slot.

Step 8 Insert the DIMM into the connector by aligning the edges of the DIMM with the slots at the ends of the connector.

Important: Incomplete insertion might cause damage to the server or the DIMM.

Step 9 Firmly press the DIMM straight down into the connector by applying pressure on both ends simultaneously.

The retaining clips snap into the locked position when the DIMM is seated in the connector.

Step 10 Install the iTBBU in the divider that contains the battery holder.

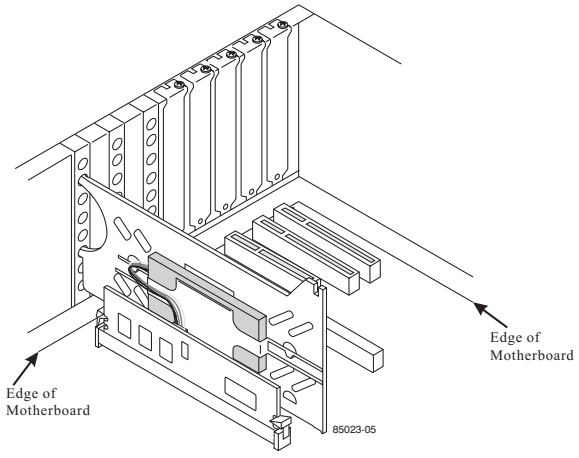
Step 11 Install the divider that contains the iTBBU holder in the server.

Step 12 Route the iTBBU cable through the cable routing guides on the divider to the DIMM.

Step 13 Insert the battery pack harness at the end of the cable into the J1 connector on the backside of the DIMM.

The installed ServeRAID-MR10k SAS/SATA Customized Enabler DIMM is shown in Figure 4.

Figure 4 ServeRAID-MR10k Installed in a System



Step 14 Reinstall the server cover and reconnect the power cords.

Step 15 Turn on the power to the system.

Warning: Existing IR arrays will be imported into MR arrays, and they cannot become IR arrays again. It is a permanent migration.

SUPPORTED RAID LEVELS

The ServeRAID-MR10k SAS/SATA Customized Enabler DIMM supports disk arrays using the following RAID levels:

- **RAID 0 (Data Striping):** Data is striped across all disks in the array, enabling fast data throughput. There is no data redundancy. All data is lost if any disk fails.
- **RAID 1 (Disk Mirroring):** Data is written simultaneously to two disks, providing complete data redundancy if one disk fails. The maximum array capacity is equal to the available size of the smaller of the two hard drives.
- **RAID 5 (Disk Striping with Distributed Parity):** Data is striped across all disks in the array. Part of the capacity of each disk stores parity information that reconstructs data if a disk fails. Provides good data throughput for applications with high read request rates.
- **RAID 6 (disk striping with distributed parity across two disks):** Data is striped across all disks in the array and two parity disks are used to provide protection against the failure of up to two physical disks. In each row of data blocks, two sets of parity data are stored.
- **RAID 10 (RAID 1 and RAID 0 in Spanned Arrays):** Uses mirrored pairs of disks to provide complete data redundancy. Provides high data throughput rates.
- **RAID 50 (RAID 5 and RAID 0 in Spanned Arrays):** Uses both parity and disk striping across multiple disks to provide complete data redundancy. Provides high data throughput rates.
- **RAID 60 (RAID 6 and RAID 0 in spanned arrays):** RAID 60 uses both distributed parity across two parity disks and disk striping across multiple disks to provide complete data redundancy. RAID 60 provides high fault tolerance.

TECHNICAL SUPPORT

See the *Warranty and Support Information* document for information about the technical support available for this product.

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