

# LSI® MegaRAID® LSIiBBU08

## Intelligent Battery Backup Unit for 6Gb/s MegaRAID SAS Controller Cards



LSIiBBU08

### Key Features:

- Helps protect integrity of cache in the event of power or server failure
- Higher maximum ambient temperature tolerance than previous generation battery backup units
- Multiple modes of operation and retention times
- Transparent and shorter learning cycles
- For use on all existing 6Gb/s MegaRAID controllers
- Customize mounting location in chassis with remote mounting options

### Higher Ambient Temperature Tolerances and Increase Serviceability

The LSIiBBU08 can tolerate higher ambient temperatures around the battery backup unit as compared to the previous generation battery, with tolerances of up to 55°C versus 45°C for ambient cell temperature. There is also a remote mount option available which allows customers who have limited chassis space or a constrained thermal environment to reposition the battery backup unit away from the RAID controller card for cooling purposes.

A lower temperature environment will generally help prolong the service life of a battery backup unit, while high temperatures and extreme conditions will shorten the battery life. For example, if the battery is set to a 12-hour DRT and 45°C mode, it may not require replacement for the life of the RAID controller<sup>1</sup>. However, using a 48-hour DRT and 55°C mode with your battery may cause a situation where the battery requires replacement after the first year of use<sup>2</sup>.

### Multiple modes of operation and retention time

The LSIiBBU08 allows for multiple modes of operation, which let the user select a shut-off data retention time (DRT) of 12, 24, or 48 hours with associated operating temperatures, learn cycles, and estimated service lives. The MegaRAID controller firmware will use the LSIiBBU08 until it calculates that the battery can only guarantee cache data for the selected period of time in the event of power loss to the server. With previous generation MegaRAID batteries, there was only one mode of operation with a retention time of 72 hours. By offering these multiple modes of operation, the LSIiBBU08 provides the flexibility to select the optimum DRT, performance based on cache policy, and maximum operating temperature that best fits their specific application and environment.

LSIiBBU08	Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	LSIiBBU07
Data Retention Time (DRT) 2	12 Hrs	12 Hrs	24 Hrs	48 Hrs	48 Hrs	72 Hrs
Transparent Learn Cycle	✓	✓	✓	⊘	⊘	⊘
Op Temp (Charging Temp)	45°C	55°C	45°C	45°C	55°C	45°C
Estimated service life <sup>3</sup>	5 years	3 years	3 years	3 years	1 years	1 years

1. Life of the controller is estimated at three years based on standard warranty  
 2. Estimated Calculation based on; 1GB (5 chips) DDR2 and one 1500 mAh Lithium ion cell, individual results may vary.  
 3. Based on internal calculations regarding estimated battery life and losses over time, individual results may vary.  
 Note: BBU warranty is still one year for all modes of operation.

### Transparent and Shorter Learn Cycles

The battery learn cycle is the process where MegaRAID firmware recalibrates the battery gas gauge with respect to the battery’s chemical capacity so that controller can decide whether or not the battery can maintain the controller cache for the selected period of time (DRT) in the event of a power failure. The battery learn cycle partially discharges and then fully charges the battery backup unit.

With the LSiBBU08, if the user requests a limited DRT of 12 or 24 hours, the controller will continue to work in write-back mode during the discharge and recharge learn cycle. In the event of a power failure during this learn cycle, the controller is designed to accommodate that there is still enough energy left in the battery to provide the selected retention time (12 or 24 hours). Because the learn cycles can be performed as needed by the BBU without impact to the write cache policy or performance, this is called a transparent learn cycle.

During the learn cycle in 48-hour DRT modes, the controller is forced to a write-through cache policy for the duration of the discharge/recharge process, as the Relative State of Charge crosses the boundary where the stated retention time cannot be maintained. This cache policy writes the data directly to the disk and helps protect against data loss during a potential power loss. While this is similar to the existing learn cycle process for the LSiBBU07 with a 72 hour DRT, it does allow for much shorter learn cycles. Typically, the LSiBBU08 only takes 3-4 hours to discharge and recharge the battery to capacity, versus an 8-10 hour process required with the LSiBBU07 due to periodic deep discharges.

LSiBBU08 Mode 1, 2, 3 Learn Cycle		3 - 4 Hour Learn Cycle No Change To Cache Policy	LSiBBU08 Mode 4 & 5 Learn Cycle		3 - 4 Hour Learn Cycle	LSiBBU07 Learn Cycle		8 - 10 Hour Learn Cycle
WB→WT	—		Yes	Yes		Yes		
Cache Policy								
Discharging	Yes (37%)		Yes (37%)	Yes (90%)		Yes (90%)		
Relaxation	Yes		Yes	Yes		Yes		
Charging	Yes (37%)		Yes (37%)	Yes (90%)		Yes (90%)		
WT→WB	—		Yes	Yes		Yes		
Cache Policy								

For more information and sales office locations, please visit the LSI website at: [www.lsi.com](http://www.lsi.com)



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