

**82885T**

**Technical Brief**

**Microsemi Adaptec 12 Gbps 36-port SAS  
Expander Card**

08 2016



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## 82885T 12 Gbps 36-port SAS Expander Card

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The 12 Gbps Microsemi Adaptec 82885T SAS Expander Card offers 36 ports of connectivity in a low-profile MD2 form factor. The card supports up to x4 or x8 connections to a companion card (for example, HBA or RAID adapter), and can provide internal connectivity for up to 24 direct-attached SAS/SATA HDDs and/or SSDs and eight external ports for storage expansion.

The 82885T is compatible with all Microsemi Adaptec Series 8, Series 7, and Series 6 RAID adapters and HBAs, third-party RAID adapters and HBAs, all HDDs and SSDs, and existing active and passive backplanes. It is also certified compatible with Microsoft Storage Spaces, allowing data centers to group together multiple storage devices of different interfaces and sizes in such a way that the operating system treats them as a single large disk.

The 82885T simplifies cabling and eliminates the need for costly external enclosures by mounting internally to any available PCIe slot, away from the backplane. The expander draws power from the PCIe slot (requires four or more lanes), but there is no data transfer to the slot. Power can also be supplied to the expander card through a standard 4-pin auxiliary power connector, keeping a valuable PCIe slot free.

The 82885T uses mini-SAS HD connectors for added cabling flexibility in dense server environments.

While all SAS expanders require power, the 82885T offers significantly lower power consumption than many competing solutions.

**Figure 1 Microsemi Adaptec 82885T SAS Expander Card**



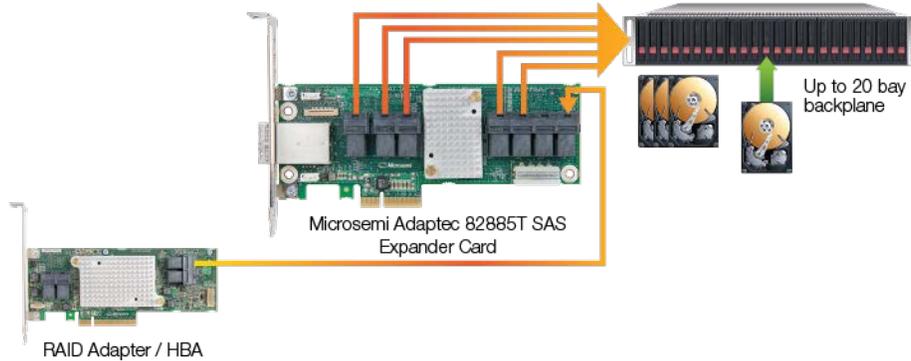
### Microsemi Adaptec SAS Expander Card Use Cases

There are an assortment of ways today's server infrastructures can be configured. The four use cases identified below are some examples of the configuration flexibility this card provides.

### Passive Internal Backplanes with SGPIO

The 82885T supports IBPI and SGPIO. The expander’s internal ports can be connected to single or multiple passive backplanes, and one SGPIO target can support four SAS/SATA ports, as shown in the following illustration. The 82885T will display all connected passive backplanes as one SES2 enclosure to the RAID adapter or HBA.

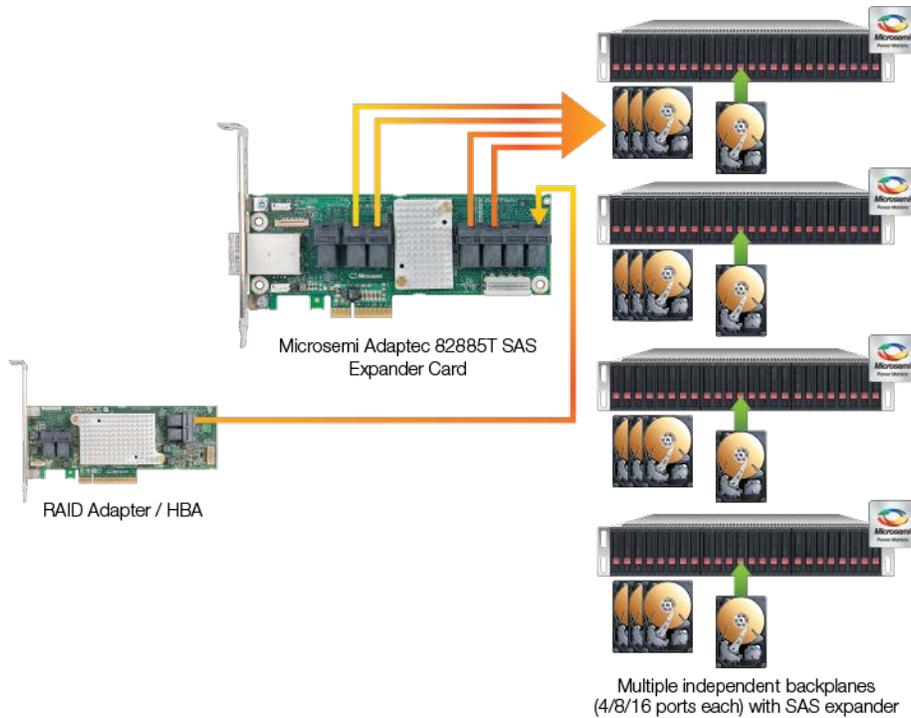
**Figure 2** Passive Internal Backplanes with SGPIO



### Internal Expander-based Backplanes with SES2 Support

The internal ports on the 82885T can be connected to single or multiple expander-based backplanes with support for up to four levels of expanders, as shown in the following illustration.

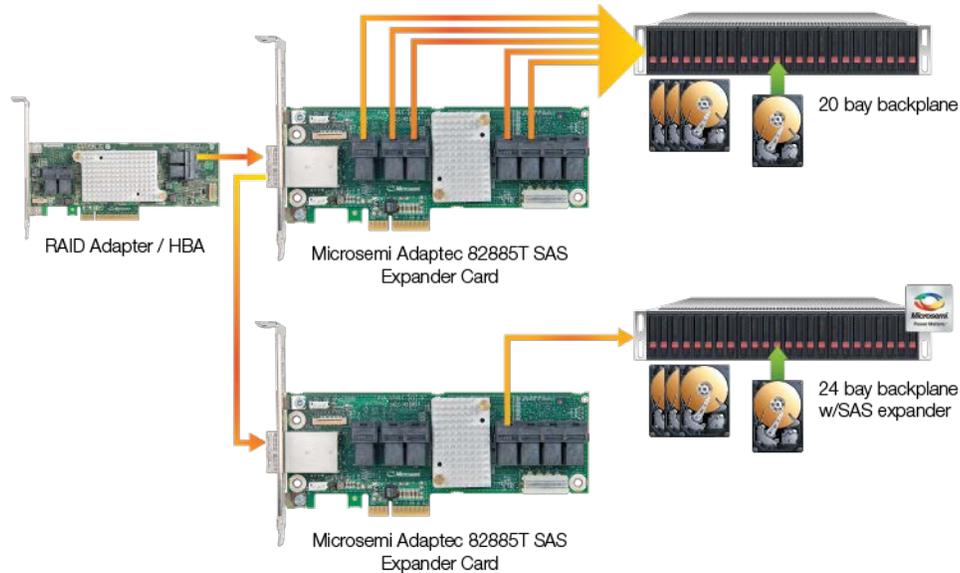
**Figure 3** Internal Expander-based Backplanes with SES2 Support



### Expander Card Used to Convert Chassis with Backplanes into Just a Bunch of Disks (JBOD)

A cost-efficient server chassis with an internal backplane can be converted into a JBOD that is connected externally to a server through a RAID adapter or HBA, as shown in the following illustration. The internal backplanes can be passive using SGPIO/IBPI or active using SAS expanders and SES2. Multiple chassis can be daisy-chained with up to four cascaded expanders. Additionally, two 82885T units per chassis, with expander backplanes, can be used for fully redundant connections.

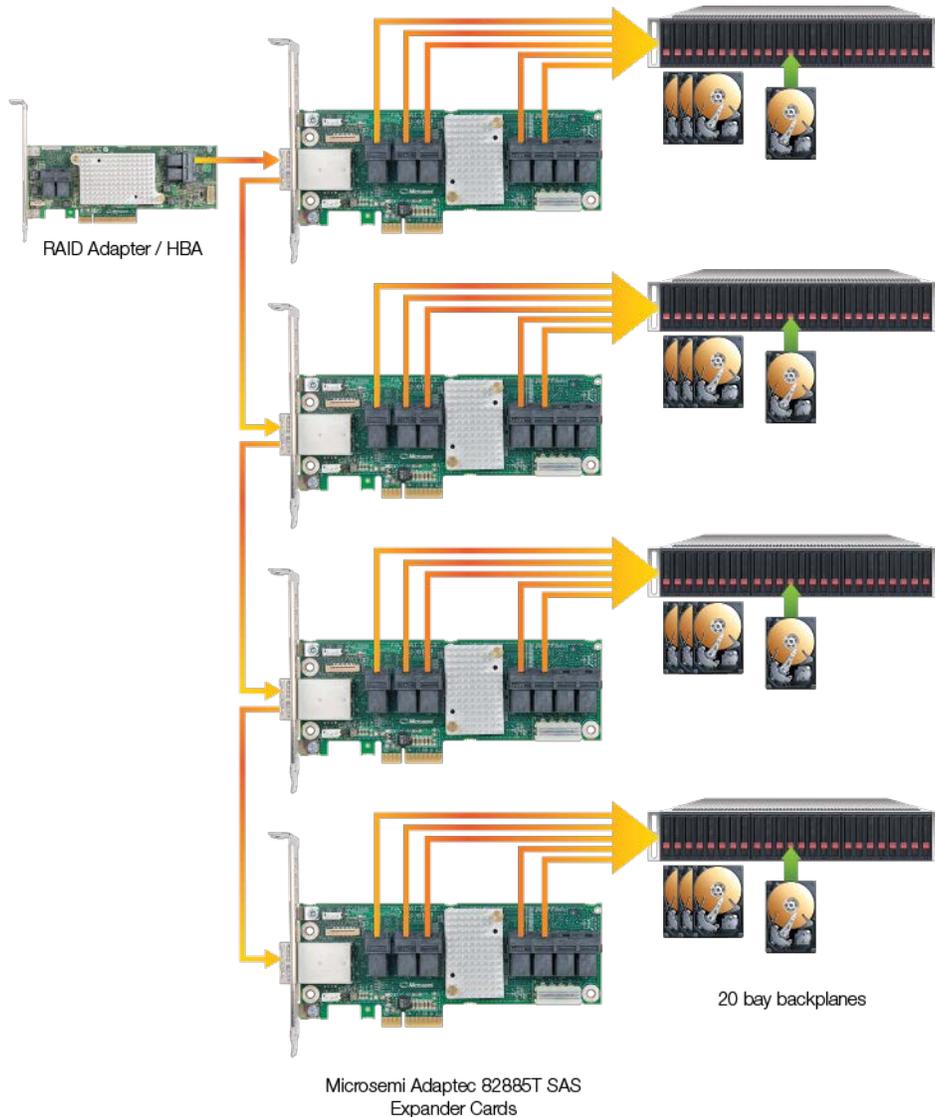
**Figure 4 Expander Card Used to Convert Chassis with Backplanes into JBOD**



### Fanout to Multiple Backplanes

Ideal for cold storage or virtual tape library applications, this scenario gives each backplane its own expander and enables very large configurations with many devices connected to a single RAID adapter or HBA, as shown in the following illustration.

**Figure 5 Fanout to Multiple Backplanes**



## Conclusion

The Microsemi Adaptec 82885T SAS Expander Card offers an ideal fanout solution for high-density storage server applications while enabling a passive backplane architecture in the server. It also provides for optional connectivity to external JBODs for even greater capacity expansion on a single SAS RAID adapter or SAS HBA.

The card is ideal for space-limited external storage infrastructures requiring direct connectivity to up to 24 internal ports for SAS adapter and/or SATA HDDs and SSDs with 12 Gbps bandwidth. Target applications include high I/O transaction and high bandwidth processing, solutions that reduce energy consumption and maintenance costs, and low-profile form factor.

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