

Sans Digital EliteSTOR 12G Series - Aggregate 3G/6G HDD performance to 12G using DHPM

Overview: Sans Digital EliteSTOR 12G SAS expander series is a storage rackmount enclosure with 12G SAS expander build-in to the unit. DataBolt Bandwidth Aggregation Technology enable 6G/3G drives performs as in 12G drives. This document provides information of DataBolt technical information and how to change the default setting.

What is DataBolt Technology?

12Gb/s SAS structure will provide excellent performance as promised. However, the most hard drives in the market and installed systems are using 3G/6G hard drives and SSDs. Sans Digital 12G SAS expander utilize LSI's DataBolt Bandwidth Aggregation Technology on its 12G SAS Expander, and it aggregate bandwidth from in 3G/6G drives to 12G bandwidth for higher total system performance

DataBolt Bandwidth Aggregation works by using a 12Gb/s buffer on each port to enable 12Gb/s communication between SAS initiator and any SAS/SATA 3G/6G drives, resulting in 50% performance increase. It operates completely internal to the expander, and is fully compliance in SAS standard.

Sans Digital DataBolt High Performance Mode (DHPM) Option (Default Enable)

Sans Digital EliteSTOR Series build-in with Databolt feature and allow user to turn it on or off (Default setting: On). To determine when to enable or disable Databolt High Performance Mode, please use the following table:

	DHPM (Default Enable)
12Gb/s Drives Installed	DHPM: Disabled 12Gb/s End-to-End configuration. Maximum performance for today's PCIe 3.0
6Gb/s & 3Gb/s Drives Installed	DHPM Enabled DataBolt Banswidth Aggregation in action to provide 12Gb/s throughput to the host by buffering and aggregating 3G/6G disks.

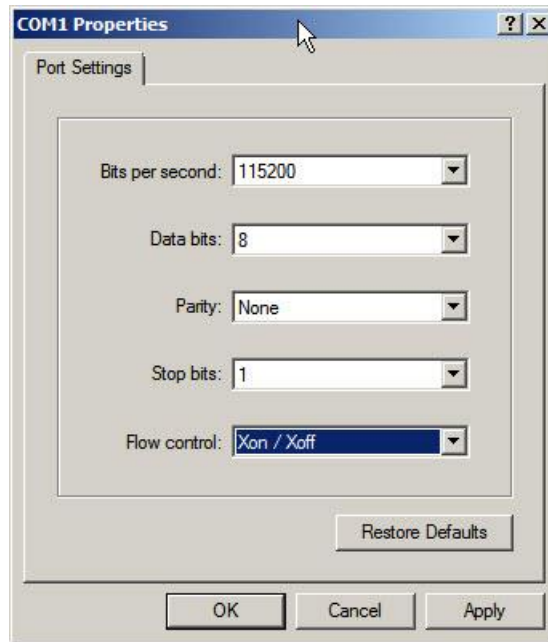
Change DHPM Setting

To disable or enable the DHPM setting, please follow the below instruction:

1. *Download and install "Hyper terminal", "putty" or other utilities for serial connection's command line interface and connect a "Serial port to RJ11" cable from your PC to your storage unit's terminal port.*



- Run the program with the following settings. Bits Per Second: 115200, Data bits: 8, Parity: None, Stop Bits: 1, Flow control: Xon/Xoff.



- After logging in, press "Enter" and you will be asked to type in a password (default password is "0000").
- To enable or disable DHPM, you will use **dhpm off (disable)** or **dhpm on (enable all)** command, followed by **st** command to save the changes, and then **reset or power cycle the unit**.

CLI> dhpm [on | off] [i,j,..] [Enter]
on - turn on all drive slot as 12G performance mode.
off - turn off all drive slot 12G performance mode.
i,j,.. - turn on/off drive slot i,j, ...12G performance mode.

Example 1 – Disable DHPM for all drives (for 12G drives setup) :

CLI>dhpm off (Set all drives off)
 CLI>st (Save Settings)

Reset or Power Cycle

Example 2 – Enable DHPM for all drives (for 3G/6G drives setup):

CLI>dhpm on (Set all drives on)
 CLI>st (Save Settings)

Reset or Power Cycle

Example 3 – Enable only drive slots number 2 and 12:

CLI>link **(Display drives information)**

```
ArrayDevice Element (0x17):  
=====
```

NAME	PHY	ORG	NLR	MAX	MIN	TYPE	ADDRESS
SLOT 01	13	6G	6G	11	8	SATA	5001B469-189AE00D
SLOT 02	12	6G	6G	11	8	SAS	5011B469-189AE00C
SLOT 03	14	6G	6G	11	8	SATA	5011B469-189AE00E
SLOT 04	15	6G	6G	11	8	SATA	5011B469-189AE00F
SLOT 05	9	6G	6G	11	8	SATA	5011B469-189AE009
SLOT 06	8	6G	6G	11	8	SATA	5011B469-189AE008
SLOT 07	10	6G	6G	11	8	SATA	5011B469-189AE00A
SLOT 08	11	6G	6G	11	8	SATA	5011B469-189AE00B
SLOT 09	5	6G	6G	11	8	SATA	5011B469-189AE005
SLOT 10	4	6G	6G	11	8	SATA	5011B469-189AE004
SLOT 11	6	3G	3G	11	8	SAS	500000E0-168F8E92
SLOT 12	7	3G	3G	11	8	SAS	500000E0-168F8E99

CLI>dhpm on 2,12 **(Set drive slot 2,12 DHPM on)**
CLI>st **(Save Settings)**

Reset or Power Cycle

After reset of power cycle, the setting can be checked by link command.

```
CLI>link  
ArrayDevice Element (0x17):  
=====
```

NAME	PHY	ORG	NLR	MAX	MIN	TYPE	ADDRESS
SLOT 01	13	6G	6G	11	8	SATA	5001B469-189AE00D
SLOT 02	12	6G	12G	11	8	SAS	5011B469-189AE00C
SLOT 03	14	6G	6G	11	8	SATA	5011B469-189AE00E
SLOT 04	15	6G	6G	11	8	SATA	5011B469-189AE00F
SLOT 05	9	6G	6G	11	8	SATA	5011B469-189AE009
SLOT 06	8	6G	6G	11	8	SATA	5011B469-189AE008
SLOT 07	10	6G	6G	11	8	SATA	5011B469-189AE00A
SLOT 08	11	6G	6G	11	8	SATA	5011B469-189AE00B
SLOT 09	5	6G	6G	11	8	SATA	5011B469-189AE005
SLOT 10	4	6G	6G	11	8	SATA	5011B469-189AE004
SLOT 11	6	3G	3G	11	8	SAS	500000E0-168F8E92
SLOT 12	7	3G	12G	11	8	SAS	500000E0-168F8E99