

What does HSDL stand for?

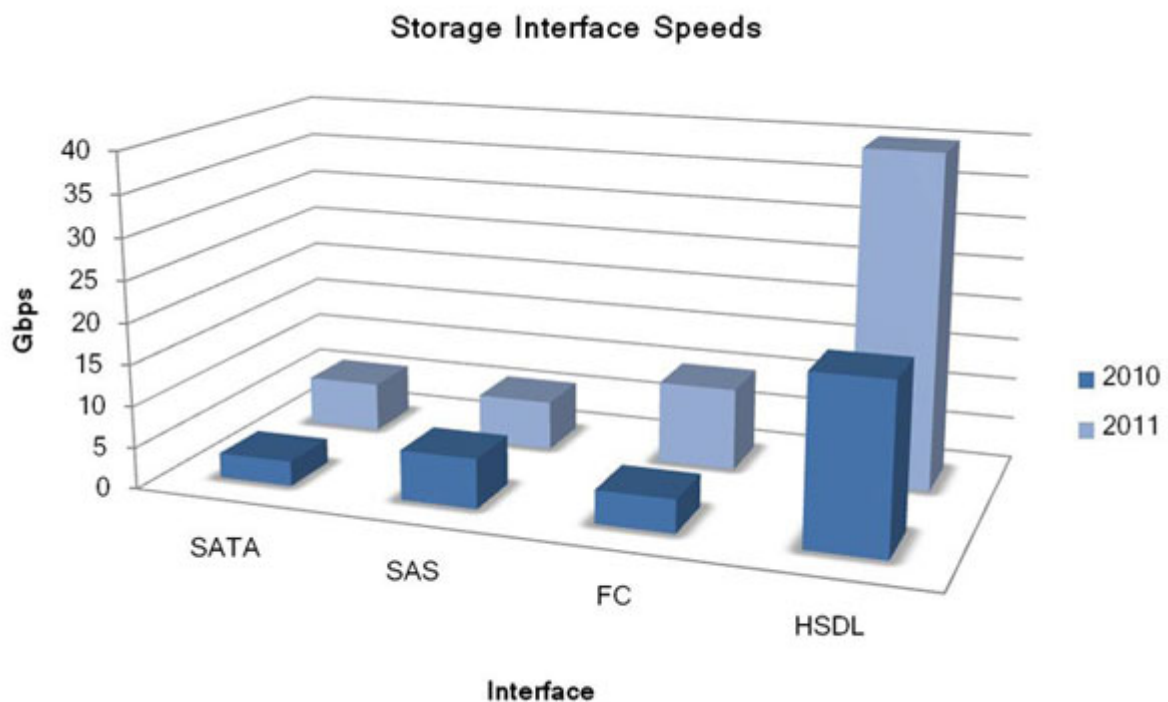
High-Speed Data Link

What is HSDL?

HSDL is a proprietary interface developed by OCZ Technology Group. HSDL significantly outperforms other current interfaces and delivers a maximum of 20Gb/s per channel with up to two channels in the current generation. In 2011, a four channel version will be made available which makes HSDL at least 10 times faster than any current storage interface and puts performance in the range of full motherboard bus saturation.

Why did OCZ develop HSDL?

Because solid-state technology is advancing at a faster rate than traditional interfaces, they are rapidly becoming the bottleneck for high-performance storage solutions. HSDL eliminates these bandwidth restrictions found in existing storage protocols and maximizes SSD performance delivers next-generation speeds today.

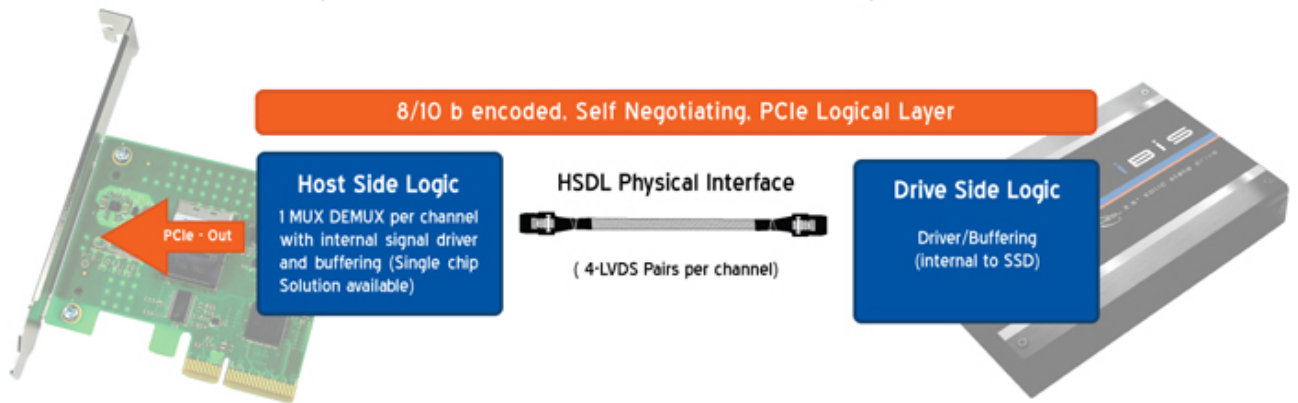


How does it work?

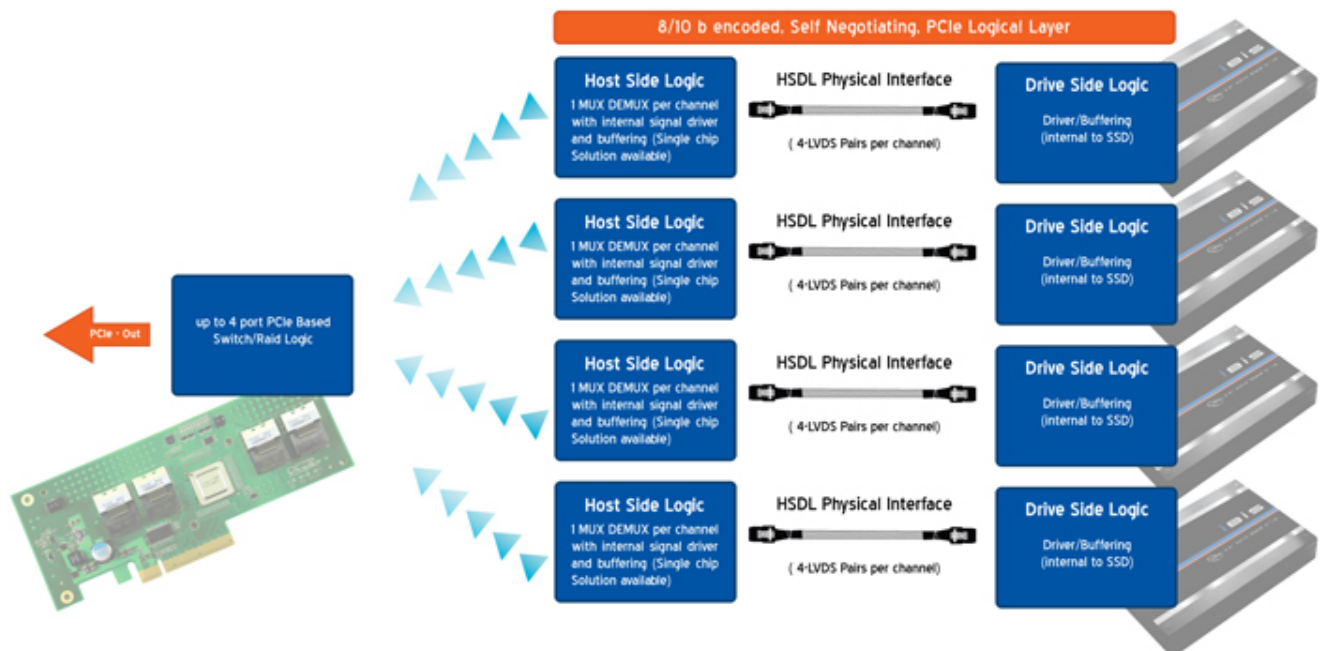
HSDL leverages PCI-Express features such as 8/10b (future 128/130b) encoding and channel grouping (bonding) along with a modified physical architecture to deliver near-PCIe speed interfaces in a multi-channelled interface with added storage-specific characteristics.

Each channel of the HSDL interface is composed of eight LVDS (Low-voltage differential signaling) pairs and correlates to four bonded PCIe compatible lanes. Signaling is handled on both ends of a cabled connection by a special logic chip which acts as a signal driver, buffer, and in the case of more than one HSDL channel, a MUX/DEMUX. This allows for up to four channels to be used on both ends of an HSDL connection (i.e., a single HSDL drive with two channels can be bonded using the MUX/DEMUX to act as a single, ultra-wide interface corresponding to eight PCIe lanes).

Single Drive HSDL Configuration

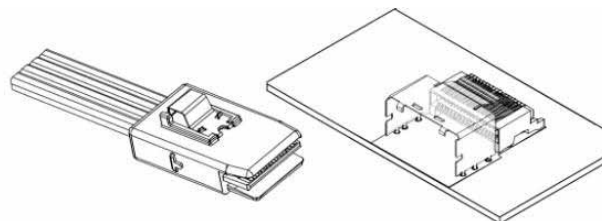


Quad Drive HSDL Configuration



Why does HSDL use a Serial attached SCSI (SAS) connector?

The HSDL cable uses off-the-shelf mini SAS connectors for easier sourcing during partner/platform implementation. The physical protocol is still handled by the HSDL cable.



HSDL cable and locked connector assembly (fixed end) on circuit board

Is HSDL an open standard?

Yes. Additionally, there is no cost to license the HSDL interface.

Does OCZ expect implementation/adoption?

Yes, OCZ is diligently working with platform partners. In the meantime, everything customers need to utilize HSDL equipped drives comes in one box. In addition to the drive and HSDL cable a single port HSDL adapter card (Figure 1a) will ship with every HSDL solid state drive. In addition, a quad HSDL adapter card (Figure 1b) is available to support up to four drives (which can then be combined into a single logical volume via software RAID currently and through hardware RAID in the future) so that users do not have to forfeit multiple PCIe slots and have the freedom to optimally configure their system. This quad HSDL adapter card allows for up to four independent drives or advanced RAID configurations.

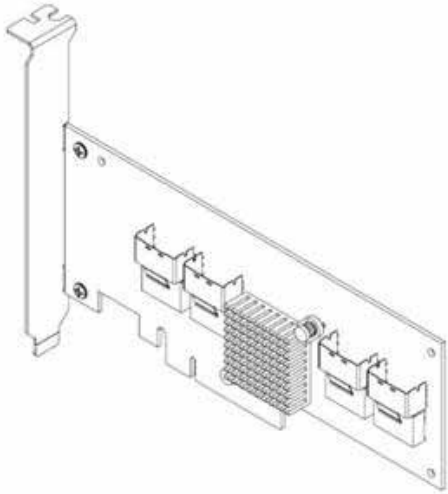


Figure 2b: four port – dual channel (PCIe x8) adapter card

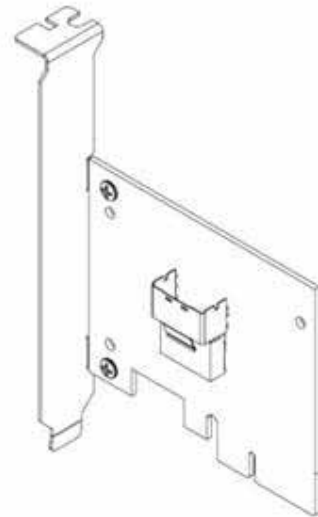


Figure 1a: single port – single channel (PCIe x4) HSDL adapter card

What is the IBIS?

The [OCZ IBIS](#) is a 3.5-inch SSD to be launched under the new HSDL initiative. As the first solution to make use of the HSDL interface, the OCZ IBIS Series has the potential to redefine storage and surpass the limitations currently placed on hard drives as well as other SSDs. Performance reaches up to 750MB/s and up to 120,000 random write 4KB IOPS. Each IBIS will come with a HSDL cable and single port HSDL adapter card.