SATA Express FAQ

What is SATA Express?
SATA Express™ is a specification from SATA-IO that standardizes PCI Express (PCIe) as an interface for client storage. PCIe technology enables up to 1GB/s per lane, as compared to SATA at 0.6GB/s. SATA Express provides an ecosystem for client storage in which SATA and PCIe solutions can coexist, in that a SATA Express host will connect to and function with a SATA or PCIe storage device.

Why is there a need for a speed increase?
There is an emerging segment of the SATA market that requires higher performance than 6Gb/s. This segment includes client SSDs and hybrid storage devices, such as an HDD with an on-drive Flash cache. SATA 6Gb/s will be more than adequate for standard HDDs and other SATA devices for the foreseeable future.

Why didn't SATA-IO decide to just increase SATA to 12Gb/s?
The transition from 6Gb/s to 12Gb/s would not be simple, requiring significant changes to drive and host silicon, as well as the supporting infrastructure. On the other hand, PCIe is a mature technology with an existing infrastructure. The latest generation of PCIe supports 8Gb/s (or 1GB/s) which provides an immediate speed increase over SATA at 6Gb/s (or 0.6GB/s), and PCIe can scale up in performance by simply adding lanes.

How about more technical details on SATA Express?
Two types of devices are defined – drives (in an HDD-type form-factor) and cards (printed circuit boards)
A PCIe drive supports up to two PCIe lanes, enabling speeds up to 2GB/s.
The currently defined PCIe card is the M.2 (formerly known as NGFF) which supports up to four PCIe lanes, or 4GB/s. The M.2 card is called out in both a SATA-IO specification and a PCI-SIG standard; both documents are still in development. The M.2 is also defined with a SATA interface.

What does this mean for the long-term viability for SATA?
SATA is still the most widely implemented storage interface for desktop and mobile PC client systems, and we expect it to maintain this position for the foreseeable future. SATA-IO will continue to refine the specifications and interoperability programs to enable developers to produce the highest quality storage solutions for their customers. We will also continue working to enhance SATA for use in additional device segments, where the speed and reliability of SATA 6Gb/s will prove advantageous. We fully expect to see the number of SATA implementations increase throughout all segments of the storage market.

When will the SATA Express specification be available?
Drafts of the SATA Express specification have been available to SATA-IO members as it was being developed. The specification is expected to start SATA-IO member review by the end of 2012. It may be ratified as early as Q1 2013, when the final specification will be released to SATA-IO members. SATA Express will be available to the general public in the next version of the SATA specification, for which no schedule has yet been set.