

Medusa Labs Training

Serial ATA (SATA) 3.0 Protocol

Course Outline - 2 Days

- Fundamental Elements of SATA
- SATA PHY Reset
- SATA Communications Model
- SATA Operations

What to expect from a Medusa Labs' class

- Never pay extra to look at trace captures
- Includes insight into the standard based on our real world testing experience.
- Learn from experts with over 10 years of experience in storage and networking.

Serial ATA Protocol (formerly ML275) — Based on the latest standard, SATA-IO: SATA 3.0!

Come investigate the inner workings of the SATA protocol, one of the latest high speed Storage technologies.

Get concrete, detailed answers to your questions: How does SATA initialize a link? How do two SATA devices agree on a link speed? What's a register and what does it have to do with SATA communications? What components extend the availability of a SATA device? How is flow control managed? How does Native Command Queuing work? You'll learn all these things and more in Medusa Labs' comprehensive SATA Protocol training.

Based on the latest SATA 3.0 standards documents and the latest real world test findings from Medusa Labs Testing Services, our SATA Protocol training covers 6G SATA and legacy data rates. And, each Medusa Labs' protocol class includes lab time.

Our classes are designed for engineering-minded individuals such as test engineers, design engineers, technical product/field support, and SAN administrators who address low-level protocol issues.

Medusa Labs

JDSU Medusa Labs is a leading provider of testing & training services. We focus on Server, Storage, and Networking interfaces and protocols. Our engineers & trainers are experts in SAS, SCSI, RAID, iSCSI, SATA, SAS, and FCoE.

Medusa Labs' engineers helped develop some of the industry's key technologies and continue to have a vigorous passion for improving products and sharing their knowledge. This experience and enthusiasm translate into the highest quality testing and training services possible.

We further set ourselves apart by bringing the lab to the classroom through the use of JDSU Xgig® analyzers in every class.



**Lab time
included in
every Medusa
Labs' class!**

**Outlines
are fully
customizable
for private
classes!**

Fundamental Elements of SATA

This section identifies the basic features of and the premises upon which SATA technology has been designed. SATA-specific objects and terminology are defined. Upon completion students are able to:

- Identify the basic features of SATA.
- Define the key motivating factors for SATA.
- Define the layers of the SATA stack.
- Compare SATA to PATA (Parallel ATA).
- Identify the physical media and limitations in SATA.
- Describe how SATA manages EMI.
- Describe how 8b/10b encoding and scrambling are applied to SATA transmissions

SATA Initialization – PHY Reset

This section discusses the SATA initialization process including speed negotiation. Trace analysis is used to investigate the out-of-band signals and frames used for identification of SATA devices and speed negotiation. Upon completion students are able to:

- Describe the concept of a SATA PHY.
- Describe how SATA out-of-band signaling works.
- Identify the process for speed negotiation between two SATA devices.
- Describe the SATA process for Dword synchronization.

SATA Communication Model

This section examines the two main SATA message structures: Frame Information Structures (FIS) and SATA Primitives. Trace analysis is used to further examine how operations are performed between SATA Hosts & Devices. Upon completion students are able to:

- Identify SATA-specific registers and how they are used.
- Describe the layout of a SATA FIS.
- Identify the contents of specific FIS types.
- Define SATA primitives and how they are used.

SATA Operations

This section discusses SATA operations which transfer data (read and write). Command queuing and Native Command Queuing are covered. Trace analysis is used to further investigate the processing of SATA commands. Upon completion students are able to:

- Describe how SATA Primitives are used to communicate the state of the Host or Device during the exchange of FIS.
- Describe how Flow Control is managed during a SATA data transfer.
- Identify the difference between PIO (Programmable IO) and DMA (Direct Memory Access) operations.
- Explain the difference between Command Queuing and Native Command Queuing (NCQ).

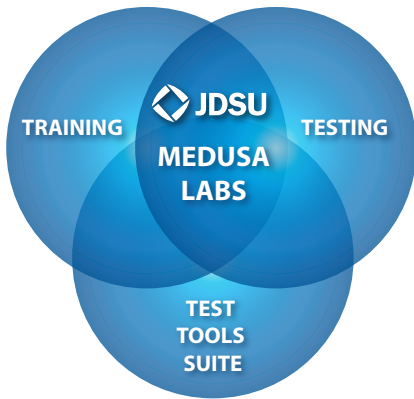


JDSU Xgig® Analyzers

Medusa Labs was the first training company to recognize the importance of using test analysis equipment in the classroom. Today we insist that not only the instructor but also the students use analyzer software during class. We believe there is no better way to reinforce the concepts discussed in a lecture than by “seeing” them in a trace capture. Using the JDSU Xgig Analyzer, we’ll show you how the protocol works. Whether onsite at your location, or at one of our own facilities, every Core Training course given by Medusa Labs includes lab time.

Medusa Labs testing

Medusa Labs Testing Services tests customers’ products quickly and thoroughly in an enterprise environment to ensure that products will survive the rigorous demands of mission-critical applications. Customers come to us for our fast turn-around, superior analysis, excellent results, competitive prices, and, of course, 100% confidentiality. We work hand-in-hand with our customers’ engineers to provide solutions, not just information. We provide not only the results of our tests, but also the debug, analysis, and regression test that is needed to ensure that the products we test perform as expected— not by our customers, but by your customers.



Medusa Labs Test Tool Suite

JDSU Medusa Labs brings its years of hands-on expertise and knowledge in the test and validation arena and puts it directly into the Medusa Labs Test Tool Suite. Medusa Labs Test Tool Suite was specifically designed to find elusive data corruptions, I/O timeouts, I/O loss, system lockup scenarios, and data integrity susceptibility. The tools are rich in debug and logging information to allow for rapid analysis of any found issues. They are designed to stress hardware and signal integrity and function on Linux, Solaris, and Windows so that familiarity on one platform leads to familiarity on all others. The suite was designed specifically for engineers that work with DVT, validation, bring-up, design validation, and Quality Assurance.

Test & Measurement Regional Sales

NORTH AMERICA TEL: 1 888 746 6484 sales-snt@jdsu.com	ASIA PACIFIC apacsales-snt@jdsu.com	EMEA emeasales-snt@jdsu.com	WEBSITE: www.jdsu.com/snt
---	---	---------------------------------------	--