Get concrete, detailed answers to your questions:

- Why is PCIe 6.0 so different?
- What are Flits and why are they needed?
- What has changed from previous versions of PCIe?
- How does PCIe initialize a link?
- How are QoS and Flow Control different in PCIe 6.0?
- How does a link negotiate to 64GT/s?
- What are the noise characteristics of PAM4?

Learn these things and more in Austin Labs PCIe 6.0 Boot Camp training. Based on the latest PCIe specifications as well as real world test findings from Austin Labs Testing Services, this training covers the PCIe protocol specifically for those with little time who need to understand the basic changes from a high level.

This class is designed for engineering-minded individuals such as test leads, program managers, design engineers, technical/product field support, and storage/system administrators who need the basics behind the 6.0 changes.

Get up to speed fast with PCIe 6.0 Boot Camp. This 1-day class will quickly help you understand the new features and functionality of PCIe 6.0 with protocol traces to show how it is being implemented today.

What to Expect
Never pay extra to look at trace captures
Insight into the standard based on our real world testing experience
Instruction from experts with over 20 years of experience in storage and networking

Lab time included in every class. Outlines are fully customizable for private classes!

For more information please contact:
Austin_Labs_Training@Teledyne.com

Austin Labs is the industry leading third-party testing and training facility. With state-of-the-art test facilities located around the world and industry expertise Austin Labs takes advantage of the wide array of Teledyne LeCroy tools for validation testing of products from server/storage to client systems with expertise in PCIe, NVMe, CXL, Ethernet, Fibre Channel, SAS, SATA, USB, Thunderbolt, Bluetooth, WiFi, HDMI, DisplayPort, MiPi C/D-Phy, MiPi M-Phy, and many others.

Our 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 translates into the highest quality testing and training services possible.
PAM4 and Forward Error Connection
As the transfer rates keep going up, PCI-SIG has found new and innovative ways to make the connections reliable. This section details the basics of this major speed increase and how such simple changes ripple through the architecture.
  • The basic encoding of PAM4
  • What this means for noise margins
  • Forward Error Correction
  • Major changes in basic signaling means a complete redesign of the entire protocol

Deferrable Memory Writes
This section is about some new features added to support other fabric types. There are new remote system type fabrics that have asked for such features that we will see in the future. These are the beginnings of those architectural changes.

Flit Mode
The PCI-SIG was given the chance to completely redesign the protocol used because of the changes brought by PAM4. Flit mode allows that to happen. Many transactions are up to 80% more efficient now.
  • Prefixes are rethought
  • Flow Control optimizations
  • Selective replay in ACK-NAK
  • Multiple TLPs in single transaction
  • DLLP return slot guaranteed

Shared Credits
Rethinking flow control allows a more optimized use of buffer memory, which can now be shared across VCs and TLP types.
  • Fixed Credits
  • Shared Credits
  • Optimized flow control packet
  • Layering and Functionality

Selective Replay
This change offers increased replay efficiency in noisy environments. This is been one item that has been talked about for years, but could not be done until 6.0 because of the huge impact this small change has on the whole protocol design.

Deprecations
When a major redesign like this comes along, we have the opportunity to remove outdated ideas, too. This section covers those items.

Major ECNs Since 5.0 Release
There have been a few big ECNs that have come out since the release of 5.0. These are detailed here, as they do have bearing on several aspects of 6.0.
  • ATS 1.2
  • Big Power
  • Unordered I/O

Analyzer Operation and Configuration
A guided walk-through of the new Flit mode features in our analyzer software.

Austin Labs Testing Services
We test 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 turnaround, 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 testing that is needed to ensure that the products we test perform as expected—not for our customers, but for your customers.

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