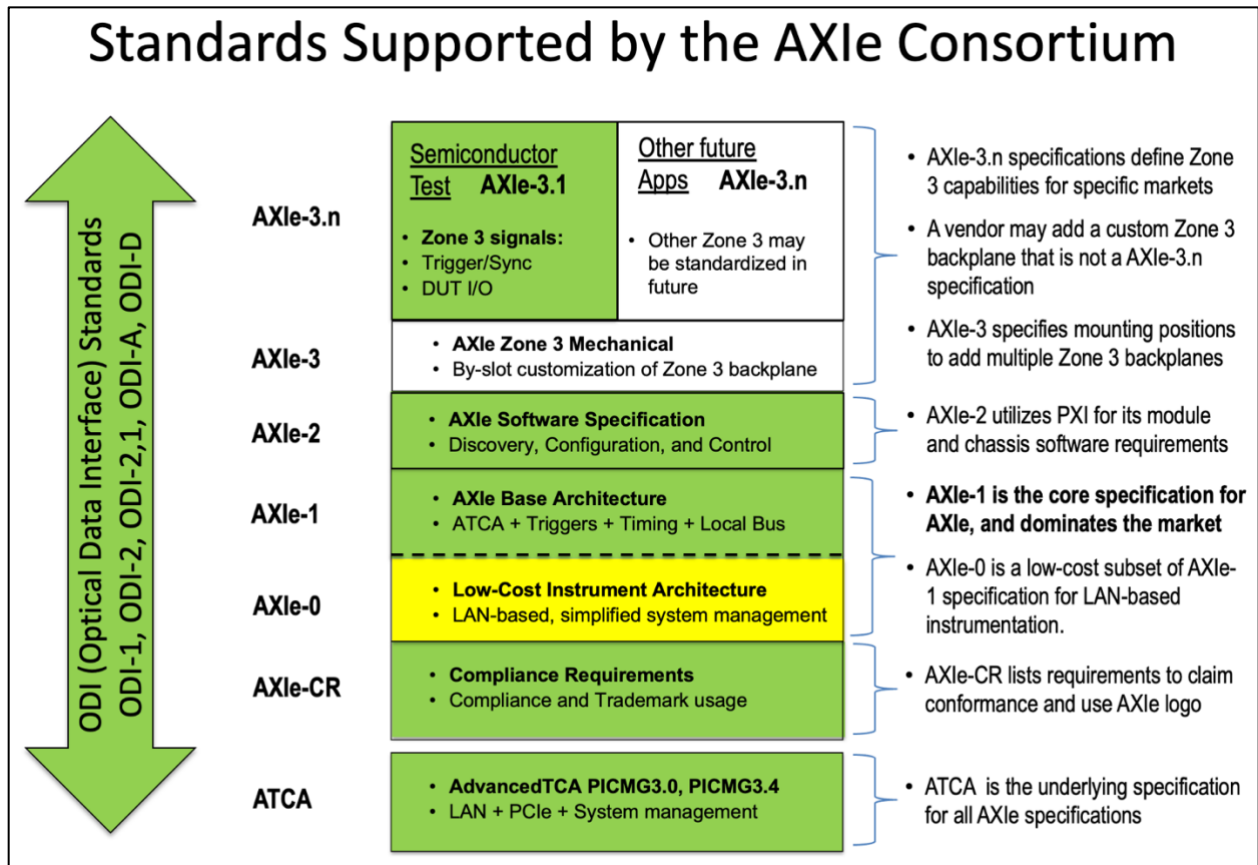


AXIe Standards Expand Scalability- Here's an Update

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Elsewhere in this newsletter you can read about the formalization of the AXIe-0 standard, focusing on low-cost instrumentation. With this formalization, AXIe has created a scalable, yet compatible suite of standards. Let's review them, and how they work together.

Below is a diagram of the existing and proposed AXIe standards.



The figure above lists all the proposed and actual standards supported by the AXIe Consortium. They are color-coded to indicate the state of formalization of the standard:

Green= Formalized specification is completed.

Yellow= Formalized specification is posted, but pending review

White= Proposed standard, but not yet documented

Let's start with the AXIe standards stacked on the right. As you can see the suite of [AXIe standards](#) are largely formalized. They are all physically based on the ATCA industrial computing standard supported by [PICMG](#), the PCI Industrial Computer Manufacturers Group. AXIe-1 is the

core specification for the AXIe standards, and is what most people think of when they hear “AXIe”. Associated with AXIe-1 are two other standards, AXIe-CR that clarifies compliance requirements, and AXIe-2 Software Specification that leverages PXI for its module and chassis software requirements. These three together specify the requirements for a compatible AXIe-1 product.

For scalability, AXIe-1 functionality can be augmented in two directions. [AXIe-3.1](#) specifies a Zone 3 backplane that delivers signals and functionality specific to semiconductor test. Normally, AXIe-1 modules and chassis have no Zone 3 connectors, so an AXIe-1 module can be inserted into an AXIe-3.1 chassis without incompatibility. This is an example of upward compatibility from AXIe-1 to AXIe-3.1.

The other scalability direction comes thanks to [AXIe-0](#). AXIe-0 specifies a LAN-specific subset of AXIe-1, and is suitable for many instrument applications. As we noted in our sister article in this newsletter, it is now going through the formal specification process, and therefore is indicated in yellow in the above graphic.

These three standards show the designed-in upward scalability of AXIe. AXIe-0 modules can operate within AXIe-1 chassis, and both AXIe-0 and AXIe-1 modules can operate in AXIe-3.1 chassis.

There are two other standards marked in white that are waiting for vendor interest development before proceeding. Both are related to Zone 3 functionality. Zone 3 is envisioned to be a standard that specifies mounting points and other physical characteristics to allow the custom mounting of multiple Zone 3 backplanes into a chassis. For example, a single chassis may support AXIe-3.1 for 3 slots, but a different configuration (perhaps RF ingress and egress) for a different for 2 slots. Any number of slots per backplane type would be supported. ATCA already defines locations of mounting points to do so, and with a few other mechanical requirements it would be possible to have user or system integrator creation of custom backplanes.

The final unaddressed specification is shown as AXIe-3.n. This is merely a placeholder for alternate Zone 3 backplanes. Presumably all AXIe-3.n backplanes would comply with the AXIe-3 specifications, allowing mixing and matching in a single chassis.

Let’s now turn our attention to the [ODI specifications](#), indicated to the left. We’ve [reported extensively on ODI](#) in the past. A key feature of ODI is that it is an interface standard that is not specific to AXIe or any other instrumentation format. It can work just as easily in the PXI format as [Conduant has done](#), or in [plug-in computer boards](#), standard instruments, or even VPX. Breaking speed and distance records, ODI has enabled gapless streaming up to 80 GBytes/s between vendors. This capability expands AXIe scalability on the high end, or that of any other standard for that matter. All five ODI standards are formalized, and thus indicated in green.

From [switch products](#) in AXIe-0, or [ODI-enabled AXIe-1 products](#) at the high end, the suite of AXIe standards enable a scalable set of solutions for nearly any application.