

HiWire™ Consortium AEC Specification 1.0

HiWire™ Consortium Active Electrical Cable (AEC) Specification 1.0

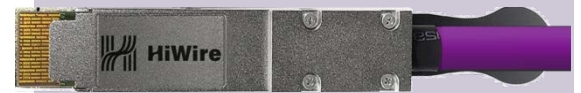
Enabling the Future of Plug & Play AECs

As Ethernet has proliferated as a standard, so has the complexity and available options for a specific cable implementation. At 400G and beyond, the existing building blocks from IEEE and the various MSAs are not sufficient precise to enable plug and play cables. In addition, there is no verification body for Ethernet cables, thus vendor claims are not vetted by a third party. The result is a broad variation of implementations of a given cable type and a large qualification burden on end users.

The HiWire Consortium AEC Specification seeks to solve these issues for the new category of Active Electrical Cables (AECs) that expand the reach of 100G-800G copper cables through the use of active CDR and Gearbox technology.

The member-ratified Specification 1.0 explicitly defines requirements for the following parameters.

Category	Parameter
Performance	<ul style="list-style-type: none"> • Max Power Consumption • Max Cable Latency • Max time to Link
Error Rates	<ul style="list-style-type: none"> • PAM4 Pre-FEC BER • PAM4 Post-FEC BER
Mechanical	<ul style="list-style-type: none"> • QSFP-DD Connector Type • Max Cable OD per type and length • Max Bend Radius • Max Bend Space
Software / Identification	<ul style="list-style-type: none"> • CMIS 4.0 – explicit register map of mandatory HiWire features per SKU including diagnostics and firmware updates • QSFP56 – clear guidance on CMIS vs. SFF-8636 • QSFP28 – explicit register map of mandatory HiWire features per SKU



The corporate members of the HiWire Consortium are dedicated to the standardization and proliferation of Active Electrical Cables (AECs).

AECs support 100G – 800G ethernet and are based on copper conductors with integrated Clock and Data Retimer (CDR) active technology to provide improvements in reach, determinism and cable thickness.

The full specification is available to members of the HiWire Consortium.

How to Participate in the HiWire AEC Standard

The HiWire Consortium is free to join and open to members who participate actively in the high speed interconnect industry as cable users, cable manufacturers or other members of the ecosystem.

To join visit www.hiwire.org/learn-more

For more information please visit www.hiwire.org or email info@hiwire.org

Specification 1.0 Contents

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HiWire AEC Cable Architecture

400G QSFP-DD to QSFP-DD	—————	Description Host side Electrical Performance Performance Parameters Mechanical Parameters Management Interface
400G OSFP to OSFP	—————	Description Host side Electrical Performance Performance Parameters Mechanical Parameters Management Interface
200G QSFP56 to QSFP56	—————	Description Host side Electrical Performance Performance Parameters Mechanical Parameters Management Interface
400G QSFP-DD to 4 x QSFP28	—————	Description QSFP-DD Host side Electrical Performance QSFP28 Host Side Electrical Performance Performance Parameters Mechanical Parameters Management Interface
400G OSFP to QSFP28	—————	Description QSFP28 Host Side Electrical Performance Performance Parameters Mechanical Parameters Management Interface
200G QSFP56 to 2 x QSFP28	—————	Description QSFP56 Host side Electrical Performance QSFP28 Host Side Electrical Performance Performance Parameters Mechanical Parameters Management Interface
200G QSFP56 to 2 x QSFP56	—————	Description QSFP56 Host side Electrical Performance Performance Parameters Mechanical Parameters Management Interface
100G DSFP/SFP56-DD to QSFP28	—————	Description DSFP / SFP56-DD Host side Electrical Performance QSFP28 Host Side Electrical Performance Performance Parameters Mechanical Parameters Management Interface