Digital Interactive Interface for Video & Audio™

DiiVA™ FAQ

Frequently Asked Questions

- ## What is DiiVA?

  Short Answer: Think of DiiVA as HDMI, USB and Ethernet in one, single low-cost cable.

  Long Answer: DiiVA is a new home multimedia networking interface standard that combines:

  - uncompressed video
  - multichannel audio
  - bi-directional data such as USB and Ethernet
  - commands (so TV can control other devices on the DiiVA network)
  - content protection

  As consumers increasingly integrate more electronic entertainment devices and digital appliances, the DiiVA interface will help streamline and simplify the connections between these devices, offering ease-of-configuration and use while maximizing the entertainment experience. Leveraging a single interface that integrates multimedia and data communication, the DiiVA standard is ideally-suited to become the backbone of a home multimedia network and upgrades home networks to cost effectively provide multimedia capability.

- ## Why is DiiVA better than existing standards?

  There are a number of reasons including…

  Networking Capability - Fundamentally, today's digital interfaces are point-to-point connections that are limited in their ability to be networked. The DiiVA specification defines a network and transport layer, similar to what you find in Ethernet networks, providing point-to-multipoint connection. DiiVA offers the ability to connect multiple source devices to multiple displays, to monitor and control various digital home appliances from a central TV, and to organize various personal and mobile entertainment devices across the same home network.

  Bulk Data Transfer – While today's interfaces have bi-directional channels such as I2C or CEC, these back channels are limited in bandwidth and very slow.

  - DVI v1.0 - has no back channel.

  - HDMI v1.3 - the CEC interface operates at 1Kbps.

  - DisplayPort v1.1 - the AUX channel, operates at 1Mbps.

  DiiVA enables a high-speed, bi-directional data channel that can operate at speeds over 2Gbps. With that much data, real communication and data sharing between consumer electronics is possible enabling the development and emergence of innovative new applications.

  Low-Cost Cabling – DiiVA operates over 4 differential pairs (or 8 wires). By using fewer wires than those required by existing standards, DiiVA cable costs will be much lower than alternative solutions. Furthermore, by sending multiple protocols through a single cable, users can save money by reducing the total number of cables.

  Inter-Operability with Future Wireless AV Standards: Since consumers will demand wireless alternatives, the DiiVA committee is investigating how DiiVA can interoperate and bridge to other wireless protocols such as WHDI.

  DiiVA is a much better interface than HDMI or DisplayPort as an interface to wireless since commands and any other data can be transferred as well as video & audio. For a wireless dongle, without a robust data interface like the one DiiVA provides, multiple cables will be needed and will not be acceptable by end users.

  There are some downsides to interoperating with wireless devices. As is the case with other technologies, wired interfaces are faster, more reliable, cost-effective, and power efficient than wireless interfaces. DiiVA will be able to handle more bandwidth than wireless and as a result, mixing wireless and wired connections may result in less features and/or slower data rates.

- ## What is the technology behind DiiVA?

  The core of DiiVA technology is a high-speed, serial link I/O that runs at 4.5Gbps per differential pair.

  Uncompressed Video (1-3 lanes) - Up to 3 differential pairs can be used to send uncompressed video with maximum bandwidth of 13.5Gbps. 1080p video at 8bit color and 60Hz refresh is about 4.5Gbps. So DiiVA is future proof, handling video transmissions well beyond 1080p resolution with deep color and high refresh rates.

  Hybrid Channel (1 lane) - DiiVA enables a high-speed, bi-directional hybrid data channel that can operate at over 2Gbps. (The link itself runs at 4.26Gbps in a single direction and operates in half-duplex mode to send data bi-directionally.) The hybrid channel is shared among 3 sub-channels: (1) a bi-directional audio sub-channel, (2) a command sub-channel and (3) a bulk data sub-channel. All sub-channels can operate simultaneously and the DiiVA protocol includes error checking routines to ensure against data loss. Within the bulk data sub-channel, protocols such as USB and Ethernet can be sent through the hybrid channel, thus enabling true data sharing between devices.

  DiiVA works over 2-4 differential pairs and is suitable to operate over a single CAT6a cable. As a result, DiiVA can keep costs low as wiring such as CAT6a already have reached economies of scale from other applications.

- ## What companies are supporting DiiVA?

  The DiiVA Consortium's charter members (called the Promoters Group) include major CE and home appliance manufacturers such as Sichuan Chang Hong Electric Co.; Qingdao Haier Co.; Hisense Electric Co.; Konka Group; Nanjing Panda Electronics Co.; Skyworth Group; SVA Information Industry Co.; TCL Corporation; and chip developer, Synerchip Co., Ltd.

  The organization of Chinese CE manufacturers—the China Video Industry Association (CVIA)—has agreed to fully support the DiiVA standard. In fact, CVIA's leadership in the Chinese electronics industry and abroad will aid in consistent adoption of DiiVA as it moves toward becoming a global industry standard—ensuring interoperability among the different brands implementing this technology.

  On April 22, the DiiVA consortium announced that the following companies have joined the DiiVA consortium as contributors to the specification:

  - **CE Makers**: LG Electronics, Panasonic, Samsung Electronics, Sharp, Wanlida (Malata), XOCECO (PRIMA)
  - **Semiconductor companies**: MediaTek
  - **Test Equipment Makers**: Agilent, Tektronix
  - **Connector Makers**: Foxconn, JAE

- ## What benefits will DiiVA bring to end users?

  Simplicity – CE Devices are getting more and more complicated and home theater setup is not simple. With the ability to pass data from device to device, applications can take advantage of the power of DiiVA's two-way communications protocol for networking, making the configuration of various devices easier for users. DiiVA can also combine video, audio and data interfaces together into one, single cable making for simpler setup between devices.

  Scalability/Connectivity – With DiiVA, CE Devices can be networked together with the goal of making all devices accessible from every TV on the network. DiiVA networks can be configured in a combination of point-to-point, daisy chain (cascaded) or switch (star) configurations.

  Cost Savings – With multiple interfaces in a single cable, DiiVA can bring cost savings to the overall system. In addition, since CAT6a already enjoys economies of scale, DiiVA cables will be cost effective in implementations requiring long cables.

  More Features – Because DiiVA enables a high-speed data channel, OEMs can create new innovative applications to take advantage of the significant bandwidth.

- ## Is DiiVA compatible with HDMI or DisplayPort?

  While DiiVA is a separate standard from HDMI and DisplayPort, low-cost bridges can be made so DiiVA devices can interoperate with HDMI, DisplayPort or VGA devices. Please note that OEMs will still be responsible for following all compatibility requirements for other standards such as HDMI and DisplayPort.

- ## When will the DiiVA specification be ready?

  The DiiVA consortium announced the release of the DiiVA 1.0 specification on April 22, 2009. The first DiiVA-enabled products are expected to be released at the end of 2009.

  For those interested in accessing the specification and becoming a DiiVA adopter, visit www.diiva.org.

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- ## What type of connector will be used for DiiVA?

  The DiiVA Promoters Group is currently developing a new connector for DiiVA. Information on the connector is covered in the DiiVA 1.0 specification.

- ## What is the maximum cable distance for DiiVA?

  The DiiVA specification calls for a maximum cable distance of 25 meters from point to point. A repeater device can be implemented and powered by DiiVA. In this case, distances of 50 meters can be supported.

- ## What type of content protection will be used in DiiVA?

  Currently, DiiVA plans to support HDCP 2.0 and DTCP-IP content protection systems. HDCP 2.0 would be the baseline content protection for uncompressed video and audio. Since content protection keys are passed as data packets in the Hybrid Channel, multiple content protection schemes can be supported within DiiVA. So if another content protection scheme is required, it can be easily implemented within DiiVA without the need to change the cable definition.

- ## Will DiiVA interface handle power?

  Yes. Similar to Power of Ethernet (PoE), DiIVA will send power through the data lines of the DiIVA cable. We call our power delivery mechanism, Power over DiiVA (PoD). PoD is included in the DiiVA specification. It will be able to send 5V power @ 500mA (2.5 Watts) over 2 differential pairs. Since there are 4 differential pairs, a total of 5W of power can be sent.

- ## Is there a compliance test for DiiVA?

  Yes. The DiiVA consortium is currently working on a Compliance Test Specification (CTS) for DiiVA. The CTS is expected to be released in Q3 2009. Once the CTS is completed, the DiiVA Consortium plans to open an Authorized Test Center (ATC) which will test products for compliance.

  Only after passing DiiVA compliance, will products will be able to use the DiiVA logo and be shipped as 'DiiVA-compliant' devices.