

# **Digital Video Interfaces Explained**

## **IEEE1394 FireWire**

A True digital connection used in many digital consumer equipment like DVC Camcorders, etc. for many years now. However, the limited bandwidth and also the fact that the data uses MPEG-2 compression, limit this format as monitors generally do not have decompression. A converter or integrated 8VSB digital tuner with input is required. FireWire may also be used for digital multi-channel DVD or SACD audio and other audio-only interface interconnecting solutions. (Dolby Digital).

## **HDMI High Definition Multimedia Interface**

HDMI was created as a digital interface standard for the consumer electronics market. Combining uncompressed high-definition video, multi-channel audio, (8ch) and inter-component control in one! HDMI connection enables audio/video units to share data and commands, thus unifying your collection of "boxes" into a real, working system. Based on Silicon Image's TMDS technology, HDMI is also fully compatible with PCs and display devices incorporating the (DVI) standard.

## **DVI Digital Video Interface**

Designed primarily to connect a computer to an LCD flat panel monitor, DVI has found applications in advanced consumer electronics image devices where it is used to deliver digital video from a source to a display. One drawback for DVI is the length of the connection, limited to 5 meters. Beyond this 5 meter length, signal degradation quickly becomes evident. Use of Super-Low-Attenuation-Cables [SLAC] and/or a booster is necessary to extend this. There are three types of DVI connections: DVI-A, DVI-D, & DVI-I

## **DVI-A Analogue [only]**

The "A" in DVI-A stands for *ANALOGUE*. DVI-A carries a DVI signal to an analog display such as a traditional computer CRT Monitor. DVI-A is seldom encountered in the home theater. Also used as an adapter lead on some computers video cards using a DVI Connector with optional Analogue VGA outputs to standard monitors.

## **DVI-D Digital [only]**

Digital Video DVI-D transfers uncompressed digital video in its native format between source and display, or between components. DVI-D dispenses with the typical digital-to-analog ► analog-to-digital conversions between a computer's video card and monitor thus provides a higher quality and faster (wider bandwidth) interface for this new digital component era of high definition digital display devices. Note: With DVI-D, any length above 5 meters requires SLAC Leads.

## **DVI-I Integrated [Analogue & Digital]**

Combine both DVI-D (S or D) & DVI-A on the same cable and you get DVI-I. DVI-I does not convert a DVI-D to a DVI-A, it simply enables all 29 pins to conduct so the interconnect is multi-use. It wouldn't be uncommon for a manufacturer to use a DVI-I connector, as this receptacle will allow for the use of both DVI-I & DVI-D cables, even if the analog transmission ability is never accessed. One cable suits all type interconnect solution. As with DVI-D, any length above 5 meters requires SLAC Leads.

## **DVI Single Link or DVI Dual Link?**

DVI uses a format called Transition Minimized Differential Signaling TMDS. SINGLE LINK cables use one TMDS transmitter. DUAL LINK cables use two. DVI-D SINGLE uses 12 of 29 pins. DVI-D DUAL LINK uses 24 of the 29 pins. Thus a DUAL Cable can be used in place of a SINGLE, but not vice-versa. A single link DVI connection can support a 1920 x 1080 image at 60fps. A dual link connection supports Higher Res. Up to a 2048 x 1536 image. A DVI-I Cable can be used for both single and DVI-D Dual Link.

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