![Valens semiconductor | high definition made simple]

Valens Semiconductor is a leading provider of semiconductor products for the distribution of uncompressed high–definition (HD) multimedia content over longer distances and with higher reliability at lowest infrastructure cost.

Valens was established in 2006 with the vision to provide a full, all–in–one solution that would enable HD multimedia content including video and audio transfer over long distances. At the beginning of 2010, Valens introduced to the market the Valens VS100 Product Family, the first set of chips fully compliant with the HDBaseT specification.

Valens is a private company with headquarters in Israel, offices in USA, Tokyo, Japan, and Hong Kong and representatives in China, Korea and Taiwan.

![HDbaseT logo]

Alliance founded in 2010 by LG Electronics, Samsung Electronics, Sony Pictures Entertainment and Valens Semiconductor to promote and commercialize HDBaseT™ technology. HDBaseT enabling a single LAN cable to replace multiple cables and connectors in the home entertainment environment, HDBaseT is optimized for video application and can connect all the entertainment devices at home by providing the 5Play convergence of uncompressed full HD digital video, audio, 100BaseT Ethernet, power over cable and various control signals.

Valens VS100™ Product Family

It is a set of chips that transmits and receives uncompressed HD video, audio, Internet, power and control signals through a single 100m/328ft LAN cable.

VS100TX (Transmitter): for DVDs, STBs and other HD source equipment.

5PlayTM convergence – simultaneous distribution of:

Uncompressed high definition (HD) video: 1080p@60Hz@48 bits, 3D, 4K x 2K

High–quality audio

Ethernet 100BaseTx

Power over cable

Control signals including RS232 and Infrared

HDCP compliant HDMI Rx & Tx interfaces for easy integration

CISPR/FCC Class B EMC/EMI compliance Support of 100BaseTx according to IEEE 802.3u
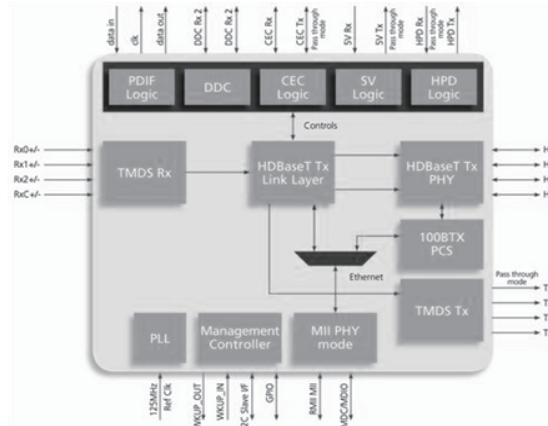
Power:

1V, 1.8V and 3.3V

5V tolerant IOs

196–pin LBGA, 15mm x 15mm

0° C to 70° C operating temperature

RoHS and Green compliant

VS100TX (Transmitter) Block diagram

VS100RX (Receiver): for HDTVs, projectors and other display equipment.

    5Play™ convergence – simultaneous distribution of:

        Uncompressed high definition (HD) video: 1080p@60Hz@48 bits, 3D, 4K x 2K

        High–quality audio

        Ethernet 100BaseTx

        Power over cable

        Control signals including RS232 and Infrared

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    CISPR/FCC Class B EMC/EMI compliance Support of 100BaseTx according to IEEE 802.3u
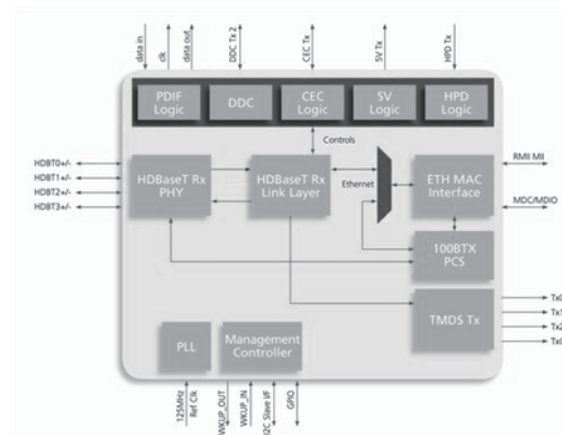
    Power:

        1V, 1.8V and 3.3V

        5V tolerant IOs

    268–pin LBGA, 21mm x 21mm

    0° C to 70° C operating temperature

    RoHS and Green compliant

VS100RX (Receiver) Block diagram

Valens VS010

VS010 targets applications that requires only 70m and don't use the Ethernet channel. VS010 has the same footprint thus it can be used as a drop-in replacement in designs that are based on the VS100.

Feature	VS010	VS100
Max Distance @ 1080p, 60Hz < 16bit	70m	100m
Max Distance @ 1080p, 60Hz, 16bit	40m	100m
Ethernet	No	Yes
IR+RS232	Yes	Yes
PoH	Yes	Yes

1. VS010 will have the same package and footprint as the VS100

2. Valens will provide a new firmware that will work only with the VS010 and will not work with VS100

3. The overall potential manufacturing cost reduction when using the VS010 is up to 60% comparing to the VS100

Valens VS020

The Valens VS020 product family, based on Valens unique HDBaseT technology, is a comprehensive tailored solution for uncompressed digital CCTV over LAN. The family consists of two chips: the VS020TX for the camera end and the VS020RX for the receiving end. The VS020 enables the convergence of uncompressed HD video, audio, power and control signals over a standard 150m cat5e/cat6a cable.

Valens innovative solution for CCTV provides camera manufacturers, system integrators and end customers with the following benefits:

- Best of breed video quality
- Low system costs
- Simple installation
- Scalable infrastructure

With the increasing demand for digital, high resolution cameras, Valens VS020 enables a simple, fast and cost effective transition to digital CCTV

Chipset Comparison	VS 100	VS 010	VS 020
Main Feature:			
Max Distance	100m	60/70m	150m
BW	8Gbps	8Gbps	3Gbps
Ethernet (100BaseT) and Fallback mode	Yes	No	No
IR & RS232	Yes	Yes	Yes
PoH/PoE support	Yes	Yes	Yes
HDCP Support	Yes	Yes	No
Interoperable with VS100	-	Yes	Yes
All Chipsets are Pin Compatible			

![Valens semiconductor logo]

Valens VS2000/VS2310/VS2311

Valens Semiconductor developed the VS2310/VS2000 product family to enable high−quality, wired connectivity of a 5Play feature set over a single LAN cable/Fiber Optics. The 5Play feature set includes:

☒Uncompressed high−definition (HD) video content

☒High−fidelity digital audio

☒100BaseTX Ethernet

☒Various control/data formats including USB2.0, SPDIF and I2S audio, I2C, RS232 and consumer infrared (CIR).

☒Up to 100W of power using PoH (does not apply to fiber media) The VS2310/VS2000 Product Family is based on HDBaseTTM technology − the first technology to enable simplified, long−distance wired connectivity of uncompressed HD multimedia content over a single, standard 100−meter CatX (Cat5e/6/6a/7) cable or fiber optics.

Valens chipset features comparison table

| Part No.	CAT−X	Reach/4K	Ethernet	CIR	UART	MSIO	I2C	I2S	SPDIF	HDIO	USB	HDCP	package
VS100	√	100/70	√	√	√	x	x	x	x	x	x	√	Pin compatible
VS010	√	70/30	x	√	√	x	x	x	x	x	x	√	
VS020	√	150/0	x	√	√	x	x	x	x	x	x	x	
VS2000	√	100/90	√	√	√	√	√	√	√	x	x	√	Pin compatible
VS2110	√	30/0	x	√	√	√	√	√	x	√	√	√	
VS2310	√	100/90	√	√	√	√	√	√	√	√	√	√	
VS2311	Co−work with VS2310 to transmit all VS2310 features over fiber except POE												

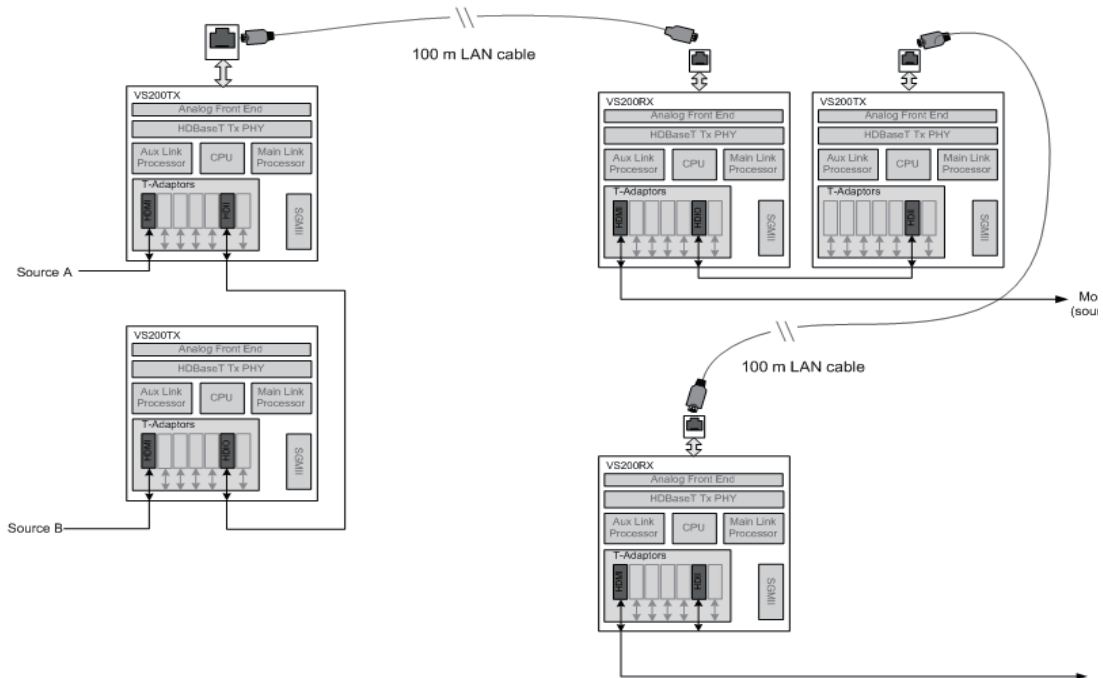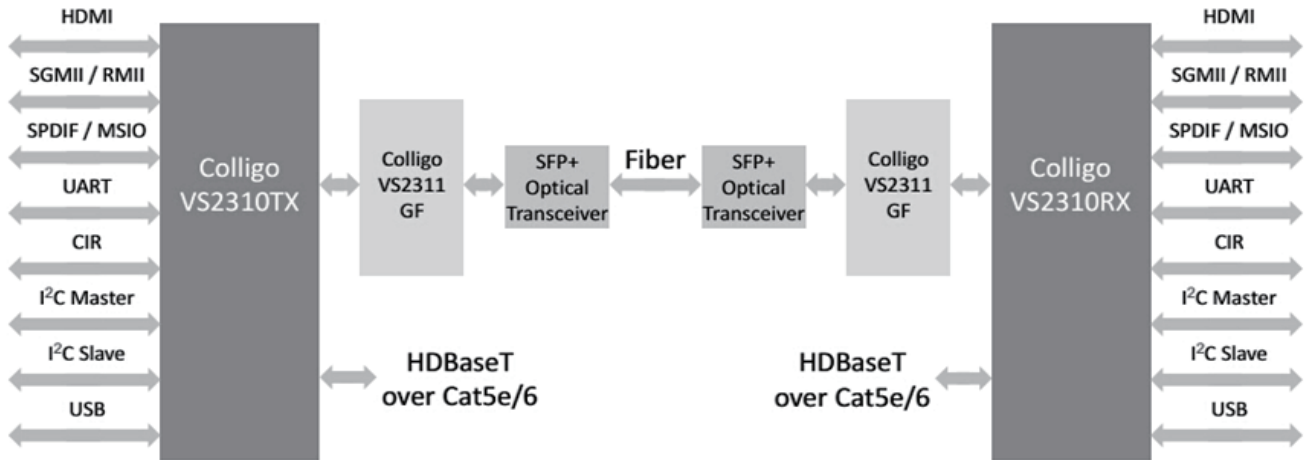## Valens VS100™ Application
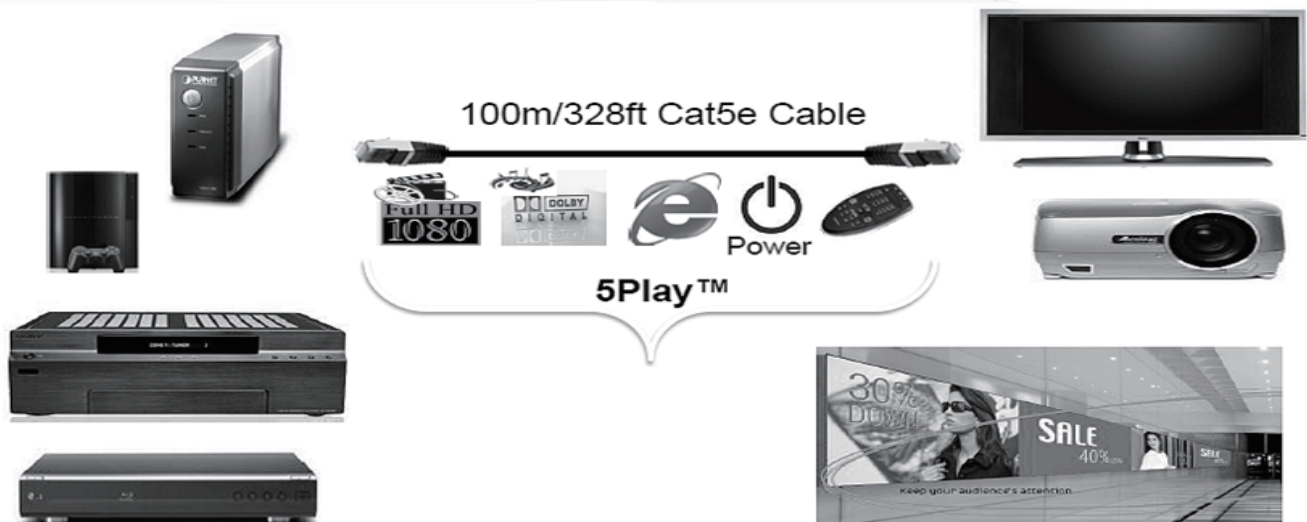
Point to Point with 5Play
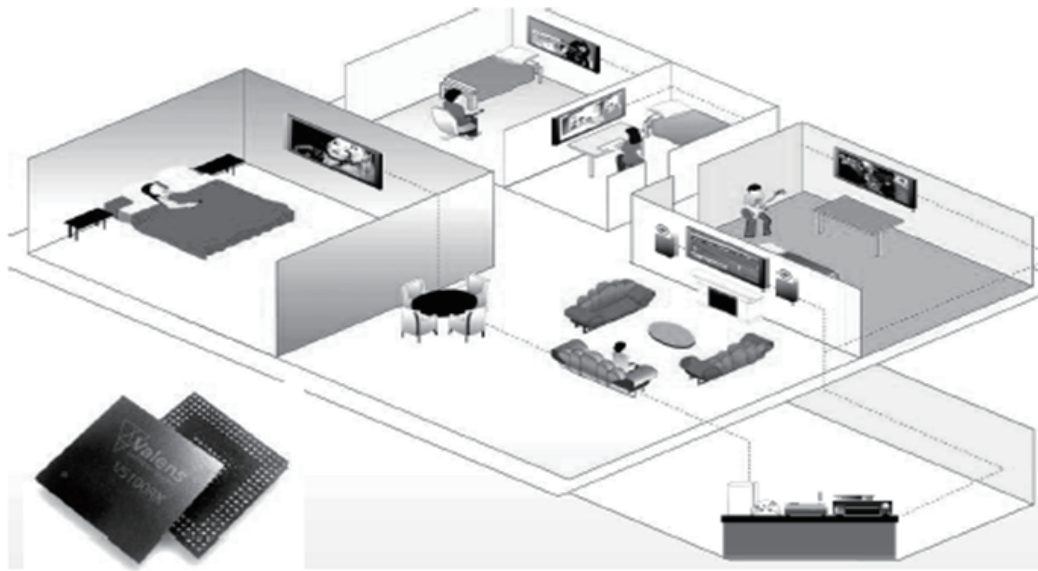
Multi-Room Multimedia Distribution
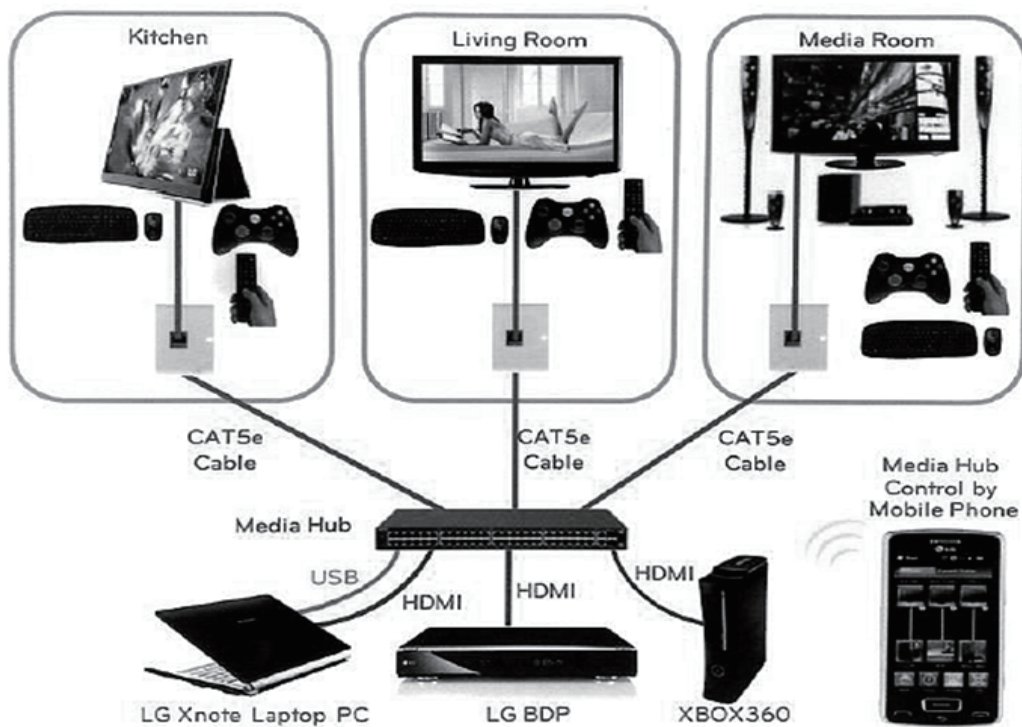
Media Hub

VS2310 Multi-stream & daisy chain example
HDI Interface = Interconnect bus

HDBaseT over Fiber Functional Description