

Valens Stello VS3000 IC Family Product Brief

The only solution for long-range distribution of uncompressed HDMI 2.0, with zero latency

Overview

The Valens Stello VS3000 chipsets are highly integrated ICs for the convergence and extension of A/V signals over a single standard Category cable. The Stello chipsets enable the extension of uncompressed HDMI 2.0 (18Gbps - 4K@60 4:4:4), high fidelity audio, 1Gbps ethernet, USB2.0, controls, and power, over a CAT cable for up to 100 meters (328 feet), with zero latency. They implement the HDBaseT 3.0 spec and are backwards compatible with HDBaseT spec 2.0 and spec 1.0 products, providing interoperability with existing installations.

The Stello chipsets feature port duality, enabling devices to be configured either as transmitters (Tx) or receivers (Rx). This allows for a single hardware SKU design, simplifying the installation and saving costs for manufacturers through flexible inventory management.

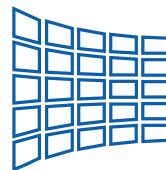
The chipsets include an HDBaseT packet-switching core for the delivery of multi-streams and sessions, coupled with a DHDI (Dual HDBaseT Digital Interface) for multi-chip interconnection. They also support an HDCP2.3 repeater, with full termination and conversion capabilities, compatible with HDCP specifications.

The VS3000 family supports multiple ProAV network architectures, including point-to-point, multi-stream, daisy chain, and ring topologies.

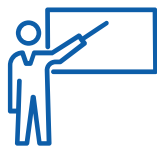
Applications



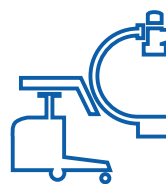
Video Conferencing



Video Distribution
& Digital Signage



Education

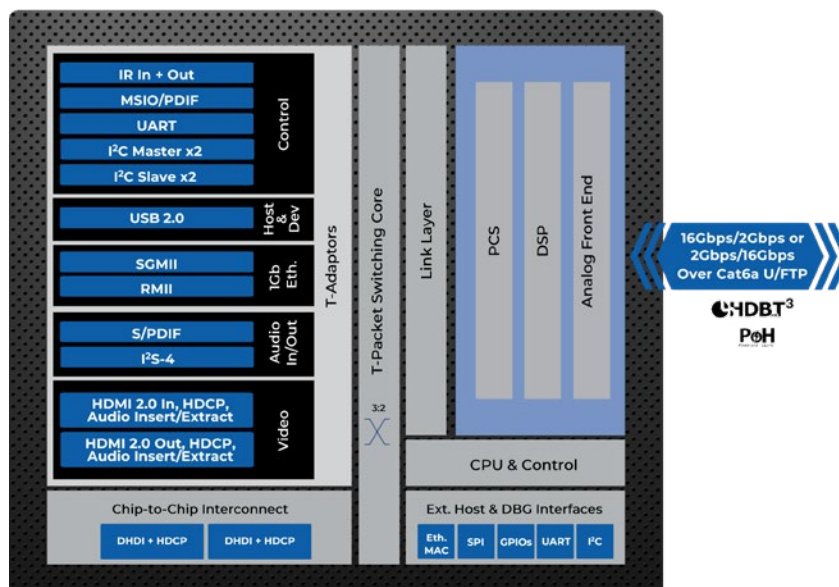


Medical Imaging
Equipment

VS3000 Functional Block Diagram



True to size



The Valens Stello VS3000 Offering:

The **VS3000** is the fully featured IC converging all interfaces for up to 100 meters (328 feet), for a bandwidth of 16Gbps on the main channel and 2Gbps on the auxiliary channel.

The **VS3100** is cost-optimized for applications that do not require USB, converging all other interfaces for up to 100 meters (328 feet).

The **VS300R** derivative is designed for short-distance applications that don't require ethernet, converging all other interfaces, including video at a resolution of 4K@60Hz 4:4:4 for up to 40 meters (130 feet) or 4K@30Hz 4:4:4 for up to 70 meters (230 feet).

The **VS310R** is cost-optimized for short-distance applications that don't require ethernet or USB, supporting the distribution of 4K@60Hz 4:4:4 for up to 40 meters (130 feet) or 4K@30Hz 4:4:4 for up to 70 meters (230 feet).

Features:

- Convergence of multiple native interfaces over a single Cat 6a cable (U/FTP), including:
 - Video: Uncompressed HDMI 2.0 4K@60Hz 4:4:4, 8-bit resolution
 - Audio: I2S-4 and S/PDIF
 - Ethernet: 1Gbps
 - USB: High speed USB 2.0
 - Controls: I2C, UART and CIR
 - Power: PoH (power over HDBaseT), based on IEEE 802.3a/bt
- Highly integrated chipset
 - Concurrent 'HDMI in' and 'HDMI out' native ports
 - Audio Extract and Insert functionality on 'HDMI in', 'HDMI out,' and the HDBaseT port
 - HDCP2.3 repeater
 - Internal HDBaseT packet switching core
- HDBaseT port duality, enabling a single hardware design to support both Tx and Rx
- Backwards compatible with VS100 and Colligo VS2000 Valens product families

Key Technical Highlights

		VS3000	VS3100	VS300R	VS310R
HDBaseT Link					
Maximum data rate	Main Channel	Downstream data rate: 16 Gbps			
	Auxiliary Channel	Upstream data rate: 2 Gbps Full Duplex			
Distance per Resolution	4K@60Hz 4:4:4	100m/328ft		40m/130ft	
	4K@30Hz 4:4:4	100m/328ft		70m/230ft	
Networking		Point-to-point, daisy-chain, and ring			
HDBaseT Port		Configurable as Rx or Tx			
Converged interfaces					
Video	HDMI	<ul style="list-style-type: none"> Fully compliant with HDMI 2.0 and HDMI 1.4 EDID adjustment mechanism for HDMI 2.0 at pixel clock higher than 594MHz Glueless interface to TMDS, DDC, CEC, and HPD HDMI signals Support of local loop: HDMI In, HDMI Out 			
	HDCP	Support for HDCP 1.4, HDCP 2.2 and HDCP2.3: <ul style="list-style-type: none"> Termination/conversion mode – negotiation is performed per segment The VS3000 acts as an HDCP repeater Conversion between HDCP 2.2 (source) to HDCP 1.4 (sink) is supported as defined in the HDCP specifications 			
Audio	S/PDIF I2S-4 HDMI 1.4 HDMI 2.0	Supports all major digital audio formats, including: Dolby Digital, DTS, Dolby TrueHD, Dolby Atmos, DTS HD-Master Audio, Dolby Pro Logic 7.1 & 9.1, and more			
	features	<ul style="list-style-type: none"> Audio Insert\Extract on HDMI In, HDMI Out and HDBaseT ARC, eARC 			
Ethernet	1 Gbps 100 Mbps	SGMII (1000BaseT or 100BaseT)		Not supported	
USB	High Speed USB 2.0	Configurable as host or device	Not supported	Configurable as host or device	Not supported
Control	I ² C	Slave/Master			
	UART	Baud rate of up to 921,600			
	IR	Modulated and unmodulated			
	MSIO	6 General purpose fast serial channels			
	CEC	Supported			
Power	PoH	Up to 100W			
Others					
System Interfaces		100Mbps Ethernet MAC, UART, I ² C slave, SPI boot EEPROM			
Inter-chip connectivity	DHDI	2 x DHDI digital interfaces for on-board inter-chip connectivity supports 16 Gbps inter-device on-board connectivity			
Junction Temperature		0°C-125°C			
Packaging	HSBGA	Dimensions: 21mm x 21mm Ball pitch: 1.0mm Pin Count: 400 (20x20)			