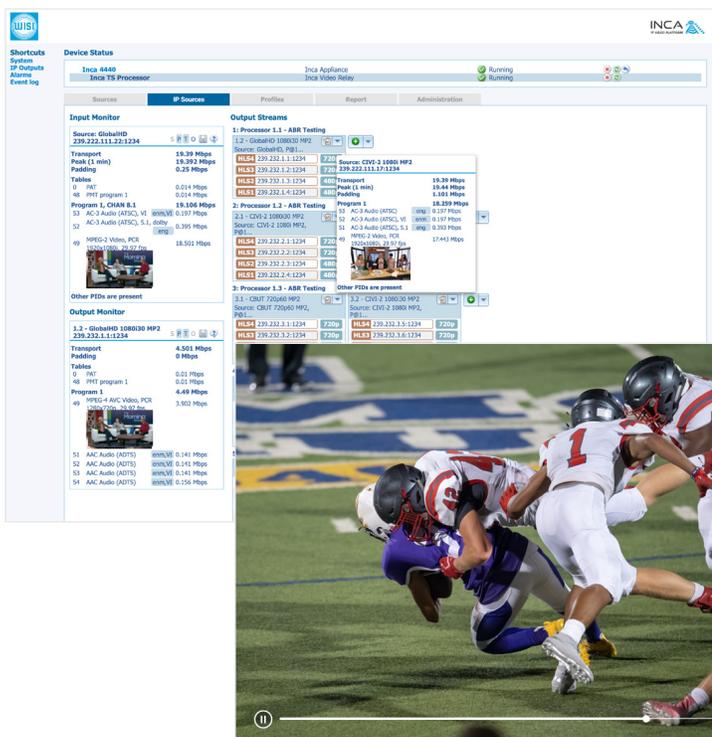# Inca IP Video Platform
Linear and ABR Transcode Solution

✔ Linear transcoding between MPEG-2, MPEG-4 and HEVC

✔ ABR transcoding with market-leading cost per stream

✔ Modular, flexible chassis with less than 200 W per chassis

✔ Receive 8VSB, ASI, IP, SRT, MPEG-DASH inputs

✔ Output video as multicast IP, HLS or SRT

✔ Automatic service failover, chassis and power redundancy

Increase visibility with VidiOS™ - includes video thumbnails & stream downloads

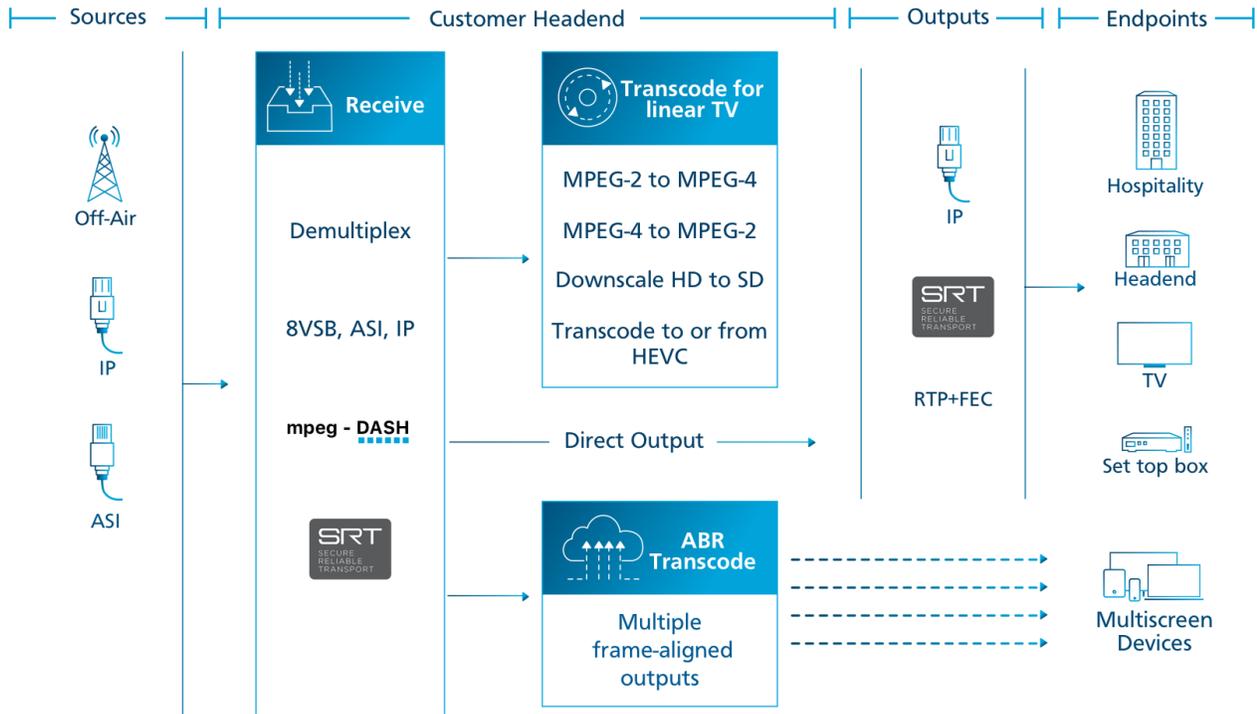Profit from using a modular platform - add additional audio or video transcodes at any time

Experience beautiful video delivery with a carrier-grade solution

Applications

✔ Optimize the format, resolution and bitrate of large numbers of live satellite, IP and off-air digital sources for delivery to set-top boxes or multiscreen devices.

✔ Clean up problematic sources for ABR deployments with advanced de-interlacing options.

✔ Enable efficient HD and SD IP video distribution over DSL and cable networks by transcoding high bitrate MPEG-2 or MPEG-4 AVC sources to optimized MPEG-4 AVC or HEVC.

✔ Distribute video easily from broadcaster sites or between remote sites using SRT.

✔ Receive all your local broadcast channels, including all primary HD and secondary SD sub-channels, and transcode them for delivery over DSL, cable and over-the-top networks.

✔ Launch new live OTT services, eliminate set-top boxes and expand your subscriber base beyond your existing distribution network.

✔ Deliver IPTV services to networks where multicast delivery is not possible; for example, over leased DSL facilities.

✔ Experience streamlined OTT deployment. Serve HLS clients directly or feed cache or CDN.

Transcode, Transrate or Downscale for Linear or ABR Applications

Available Modules

Up to 4 modules can be used in a single Inca chassis. One module type can be installed exclusively or in combination with other modules to support different applications.

8VSB / QAM Receiver Module	
Tuners	4x 8VSB ATSC or DVB-C Annex B QAM
Input Connectors	4x RF 75 ohm F-Type
Payload	HD & SD, MPEG-2 & MPEG-4 AVC SPTS/MPTS

XC3 Transcode Module	
Transcode/Transrate/Downscale	Linear - up to 12x HD or 30x SD inputs Adaptive bitrate - up to 24 profiles
De-interlacing options	Weave, bob
Codecs	MPEG-4 AVC and MPEG-2, 4:2:0

ASI Module	
ASI Fixed Input Ports	6x
Input Connectors	6x RF 75 ohm BNC
Bitrate	Up to 108 Mbps per port
Payload	HD & SD, MPEG-2 & MPEG-4 AVC SPTS/MPTS

HXC Transcode Module	
Transcode/Transrate/Downscale	Linear - up to 6x HD or 12x SD inputs
De-interlacing options	Advanced, weave, bob
Codecs	HEVC, MPEG-4 AVC and MPEG-2, 4:2:0
Capacity	Up to 3x modules per 4440 Chassis

Chassis Specifications

4440 Chassis Density	
Linear Transcoding	Up to 48x HD or 90x SD sources

ABR Transcoding	Multi-bitrate profiles:
	  Up to 24x HD sources to 4x ABR profiles
	  Up to 48x SD sources to 2x ABR profiles

Video Network Interfaces	Front network options: Rear network options: 8x 1000 Base-T 4x 1000 Base-T 4x 10 Gig SFP+ 2x 10 Gig SFP+ Capacity for up to 3x Capacity for up to 4x transcoder/receiver transcoder/receiver modules modules
8VSB/QAM Receivers (optional)	Up to 16 tuners
ASI Input Ports (optional)	Up to 24 ports

Power	
Type	Dual redundant hot swap
Input	100 ~ 240 VAC @ 50 - 60 Hz Redundant DC power option available
Power	< 200 W typical

Physical	
Mounting	19", 4 post rack, 1RU Slide rails included
Dimensions	438 x 44 x 525 mm 19" x 1.75" x 20.7"
Rack Rail Depth	620 - 805 mm 24.4" - 31.8"
Weight	15 kg / 33.1 lb
Operating Temp.	0 ~ 40 °C

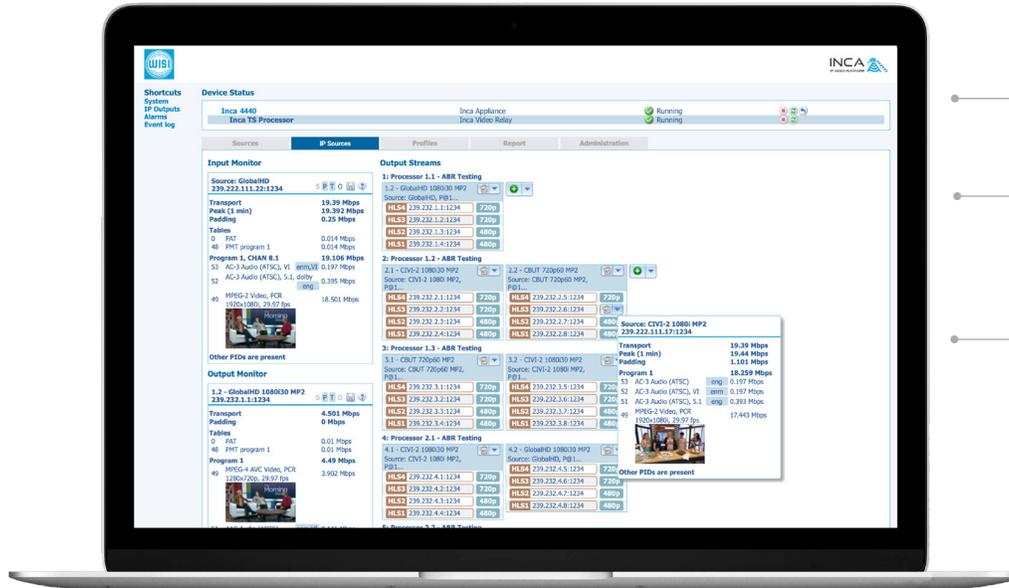## Technical Specifications

Transport Stream Processing	
Inputs	MPEG-2 SPTS/MPTS transport stream Multicast / Unicast UDP IP, SRT, MPEG-DASH Optional 8VSB/QAM, ASI
Outputs	MPEG-2 SPTS transport stream Multicast / Unicast UDP IP, SRT, HLS Transcode to SPTS Demux or pass through to SPTS/MPTS
Input and Output Codecs	MPEG-2 and MPEG-4 AVC, HEVC 4:2:0
Source Resolutions and Frame Rates	1920x1080i @ 30/25 704x480i @ 30 1280x720p @ 60/50 544x480i @ 30 720x576i @ 25 528x480i @ 30 720x480i @ 30 *Other formats supported, please inquire*
Output Resolutions and Frame Rates	1920x1080i/p @ 30/25 720x576i/p @ 25 1440x1080i/p @ 30 720x480i/p @ 30/25 1280x720p @ 60/50 704x480i/p @ 30/25 1280x720p @ 30/25 544x480i/p @ 30/25 854x480p @ 30 528x480i/p @ 30/25 852x480p @ 30 192x192p @ 15 (PIP) *Other formats supported, please inquire*
Transport Stream Optimizations	PID and program filter and remap, jitter correction, strip null padding, transport rate VBR <--> CBR conversion
Transport Modes	Constant, variable, peak
Closed Captions	EIA 608/708 passed through if present in source
DVB Subtitle Burn In	Select by language
DVB Subtitle PID	Passed through if present in source
SCTE 35 Ad Markers	Passed through if present in source

Demux to IP and TS Probes	
From IP Sources	10x included. License option available for 48, 96 or 144 direct outputs
From 8VSB/QAM, ASI Sources	Up to 64 direct outputs included

Audio Transcoding (optional - licensed per stream)	
Source Audio Codecs	AC-3, EC-3, AAC (ADTS & LATM), MPEG 1/2 Audio Layer I/II
Source Audio Channels	7.1, 5.1, 2.0, 1.0
Output Audio Codec	AC-3, EC-3, AAC (ADTS & LATM), MPEG-1/2 Audio Layer I/II
Output Channels	2.0, 1.0
Audio Processing	Nielsen watermark extraction and ID3 tags insertion

Redundancy Options	
Service Failover (Licensed per output)	Automatic failover to backup source Automatic recovery to primary source
N+1 Chassis Redundancy (Licensed per chassis)	Automatic failover to spare chassis Automatic recovery to primary chassis

Management	
Configuration	Powerful VidiOS™ web-based user interface
Visual Mosaic Monitoring	Compatible with All Seeing Eye monitoring product - All Seeing Eye probe capability included
Management Network Interface	1000 Base-T
NIC Redundancy	LACP, active failover, round robin
SNMP	SNMP trap forwarding

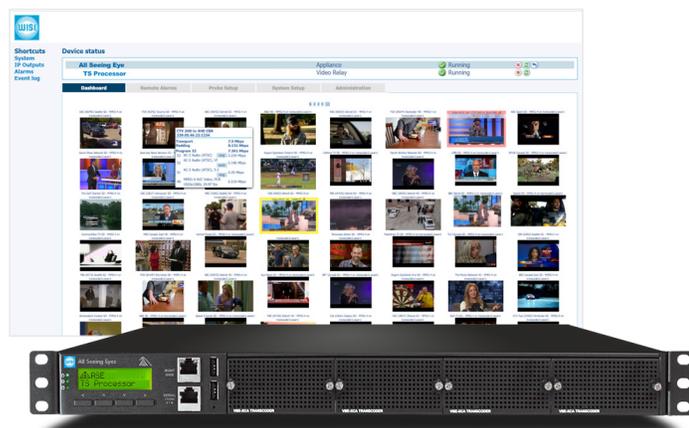| Regulatory Compliance	
EMC Standards	FCC Part 15 Class A
Safety Standards	IEC/CSA/UL 62368-1

VidiOS™ Management & Monitoring Tools

Meet VidiOS™, Inca's advanced processing and monitoring engine that provides unique visibility into every step of the video processing chain.
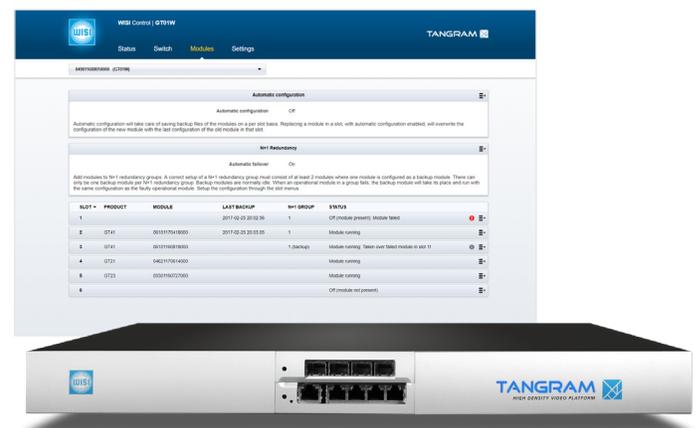

Enables rapid configuration and deployment

Experience deep visibility and efficient troubleshooting

Experience effective diagnostic tools with video thumbnails, stream sample downloads, detailed stream statistics including PID and payload details, warnings and errors

Pair with the All Seeing Eye for confidence monitoring

✔ Visual monitoring of all headend streams

✔ Efficient troubleshooting with visual highlighting of impairments and email notifications

✔ Overview mosaic of video thumbnails

Pair with the Tangram for more output options

✔ Enable Verimatrix, Pro:Idiom, Samsung LYNK or BISS encryption/decryption

✔ Deliver IP, Analog or QAM outputs

✔ Combine up to 6 modules in 1RU to mix different applications based on deployment needs

Ordering Part Numbers

Inca IP Video Platform

4440dvp	4x bay modular video processing chassis One front or rear network interface option required Up to 90x video transcodes per chassis

Network Interface Modules

NIC-RC-1G-4x	4x GigE rear network card Allows up to 4x transcode/receive modules
NIC-RSP-10G-2x	2x 10G SFP+ rear network card Allows up to 4x transcode/receive modules
NIC-FC-1G-8x	8x GigE front network module Allows up to 3x transcode/receive modules
NIC-FSP-10G-4x	4x 10G SFP+ front network module Allows up to 3x transcode/receive modules

Power Supply Options

PSU-DC-INCA	DC power supply unit to upgrade chassis to redundant, hot swappable DC power

Hardware Processing and Receiver Modules

VMA-HXC-103	HXC transcode module for HEVC inputs/outputs. Includes advanced de-interlacing Up to 3x HXC modules can be supported per 4440 chassis
VMA-XC3	High-density transcode module for MPEG-2/MPEG-4 with 3x transcode processors
VMA-ASI-6-XC2	Six port ASI interface with 2x transcode processors
VMA-ASI-6-XC	Six port ASI interface with 1x transcode processor
VMA-8VSB-4-XC2	Quad 8VSB/ClearQAM tuner interface with 2x transcode processors
VMA-8VSB-4-XC	Quad 8VSB/ClearQAM tuner interface with 1x transcode processor

Redundancy Licenses

VSL-SFOPROBE-LIC	VidiOS™ service failover license Monitor one primary service for up to six error conditions, with user configurable thresholds Automatic failover to secondary source, with automatic recovery to primary source
44XX-N1	License for N+1 chassis redundancy (1 per redundant chassis)

Audio Transcode Licenses

VSL-AUX-A3X-DM-LIC	5.1 Dolby audio transcode license for 5.1 Dolby AC-3/EC-3 sources
VSL-AUX-A3X-LIC	2.0 Dolby audio transcode license for stereo Dolby AC-3/EC-3 sources
VSL-AUX-DM-LIC	Audio transcode license between MPEG-Audio and AAC Encode to AAC for additional bitrates

Transcode Licenses for HXC Modules (1x License per module)

VBE-XCH-HD-LIC	6x HEVC HD transcode license Transcode 6x HD video streams between HEVC and MPEG-2/MPEG-4
VBE-XCH-SD-LIC	12x HEVC SD transcode license Transcode 12x SD video streams between HEVC and MPEG-2/MPEG-4
VBE-XCH-HD24-LIC	6x MPEG-2/MPEG-4 HD transcode license Transcode 6x HD video streams between MPEG-2 and MPEG-4
VBE-XCH-MUSIC-LIC	55x music service transcode license Transcode 55x music services to MPEG-4 for ABR deployments.

Transcode Licenses for XC, XC2 and XC3 Modules (1x License per Transcode Processor)

VBE-XCA-HD-LIC	4x MPEG-4 HD transcode license Transcode 4x HD video streams between MPEG-2 and MPEG-4
VBE-XCA-SD-LIC	10x MPEG-4 SD transcode license Transcode 10x SD video streams between MPEG-2 and MPEG-4
VBE-XCA-FLEX-MPEG2-LIC	MPEG-2 flex transcode license. Flex license can be configured in the user interface to transcode: - 2x HD MPEG-2/MPEG-4 to MPEG-2 HD/SD - 4x SD MPEG-2/MPEG-4 to MPEG-2 SD
VBE-XCA-FLEX-ABR-HR-LIC	ABR high res flex transcode license. Flex license can be configured in the user interface to transcode: - 1x HD MPEG-2/MPEG-4 to 6x ABR MPEG-4 profiles, top output profile of 1080p30 or 720p60 - 2x SD MPEG-2/MPEG-4 to 5x ABR MPEG-4 profiles *Max two downscales per sources*
VBE-XCA-FLEX-ABR-LIC	ABR flex transcode license. Flex license can be configured in the user interface to transcode: - 1x HD MPEG-2/MPEG-4 to 6x ABR MPEG-4 profiles, top output profile of 1080p30 or 720p60 - 2x HD MPEG-2/MPEG-4 to 4x ABR MPEG-4 profiles, top output profile of 720p30 - 2x SD MPEG-2/MPEG-4 to 5x ABR MPEG-4 profiles - 4x SD MPEG-2/MPEG-4 to 2x ABR MPEG-4 profiles *Max two downscales per source*

IP Streaming Licenses

VSL-DTA+Probe-48	VidiOS™ 48x Direct Output License Receive full multiplexes via GigE ports, demultiplex all programs Up to 144 direct outputs per 4440 chassis from IP sources
VSL-STM-SRT-LIC	1x license per SRT connection Receive and decrypt one SRT stream, or send and encrypt one SRT stream Up to 60x SRT connections per 4440 chassis
VSL-HLS-LIC	HLS streaming license, 1x license per Inca chassis Generate HLS outputs automatically from ABR transcoded outputs Serve up to 700 HLS clients directly, or up to 2.8 Gbps of output bandwidth to CDN or cache

More license options available, including PIP licenses for Mediaroom deployments, ask your sales rep.

To arrange an online demonstration or to discuss your project, please send a request to sales@wisi.tv