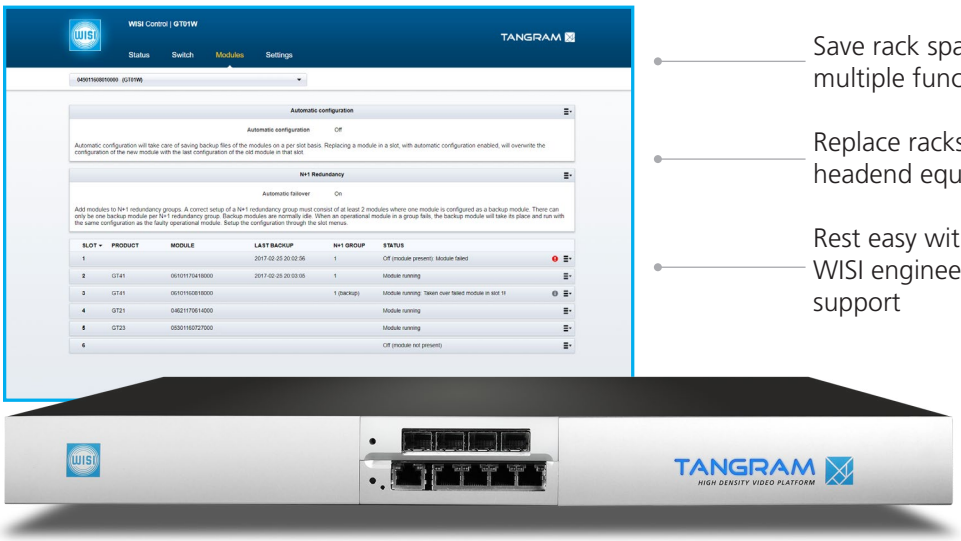
Tangram Video Platform
High-Density Video Processing

- Options for analog, 8VSB, QAM, ASI and encrypt/decrypt
- Low power consumption, AC or DC power options
- Bandwidth expansion with four SFP slots
- Combine up to 6 modules based on deployment needs
- Hot-swappable modules, fan trays and power supplies
- High reliability with module and source redundancy



Tangram chassis shown with GT12 module.

Save rack space, power and cooling costs - consolidate multiple functions into a single integrated solution

Replace racks of legacy end-of-life or end-of-support headend equipment with one sophisticated platform

Rest easy with reliable 24/7 operation thanks to quality WISI engineering and strong North American technical support

Applications

- Maintain legacy revenue streams for analog customers by bridging digital headend equipment to analog services.
- Integrate into existing infrastructure by replacing costly equipment with a high-density IP to QAM modulator.
- Receive up to 48x 8VSB, off-air channels and deliver as IP outputs.
- Protect streams for hospitality applications with Pro:Idiom, Samsung LYNK encryption, or Verimatrix bulk decryption.
- Connect directly with broadcasters or maintain secure point-to-point signals with ASI to IP or IP to ASI functionality.
- Improve visibility and monitor streams with a visual mosaic of all headend streams using Inca's All Seeing Eye.

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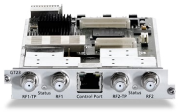
Available Modules

Up to 6 modules can be used in a single Tangram chassis. One module type can be installed exclusively or in combination with other modules to support different applications.

GT21
IP to Analog
Up to 6x analog channels on 2x RF outputs



GT23
IP to QAM
Up to 12x QAM channels on 2x RF outputs

GT31
Satellite Receiver
4x DVB-S/S2/S2x and ISDB-T tuners on 4x RF inputs

GT32
ASI to IP/IP to ASI
4x ASI input or output, demux & passthrough

GT33
8VSB/QAM to IP
8x 8VSB/QAM tuners on 4x RF inputs

GT41
Video Processor
Scrambling (Pro:Idiom, Samsung LYNK), Descrambling (Verimatrix)

Module Specifications

GT21 IP to Analog	
IP Inputs	32x Services
IP Input Protocol	UDP/RTP/RTP+FEC Unicast and Multicast, IGMP v2 and v3
IP TS Input Format	SPTS CBR/VBR, MPTS CBR
Video Downscaling	2x MPEG-4 HD and 2x MPEG-2 SD concurrent (NTSC)
Audio Dolby Decoding	Yes, with GTDOL license

GT23 IP to QAM	
IP Inputs	128x Services
IP Input Protocol	UDP/RTP/RTP+FEC Unicast and Multicast, IGMP v2 and v3
Modulation Compliance	DVB-C, Annex B
Modulation Type	16-, 32-, 64-, 128-, 256-QAM
Service Remultiplexing	Yes, with GTSYMUX license
Service Processing	PID filtering & remapping, PCR correction and de-jitter, Advanced PSI/SI regeneration

GT31 Satellite Receiver	
RF Input Tuners	4x Tuners
Modulation Type	DVB-S/S2/S2x or ISDB-T
IP Outputs	64x (128x with GTSTRX license)
IP Output Protocol	UDP/RTP/RTP+FEC Unicast and Multicast, IGMP v2 and v3
IP FEC Outputs	32x, with GTFEC license
Service Remultiplexing	Yes, with GTSYMUX license

GT32 ASI to IP/IP to ASI	
ASI Inputs & Outputs	4x Ports
IP Inputs & Outputs	64x Streams (128 with GTSTRX license)
IP Input & Output Protocol	UDP/RTP/RTP+FEC Unicast and Multicast, IGMP v2 and v3
IP TS Input & Output Format	SPTS CBR/VBR, MPTS CBR
IP FEC Inputs & Outputs	Yes, with GTFEC license
Service Remultiplexing	Yes, with GTSYMUX license

GT33 8VSB/QAM to IP	
RF Inputs	8x Tuners per module 8VSB ATSC or QAM DVB-C Annex B
IP Output Bitrate	Max. 425 Mbit/s per output TS, Max. 850 Mbit/s total
IP Output Protocol	UDP/RTP/RTP+FEC Unicast and Multicast, IGMP v2 and v3
IP FEC Outputs	32x, with GTFEC license
IP Packet Format	MPEG-TS over UDP/IP and RTP/IP

GT41 Video Processor	
IP Inputs & Outputs	32x or 64x Streams (128 with GTSTRX license)
IP Input & Output Protocol	UDP/RTP/RTP+FEC Unicast and Multicast, IGMP v2 and v3
IP TS Input & Output Format	SPTS CBR/VBR, MPTS CBR
IP FEC Inputs & Outputs	32x or 64x or 128x streams (with GTFEC license)
Service Remultiplexing	Yes (GTSYMUX functionality is included)
Encryption	AES128, Samsung LYNK, Pro:Idiom, BISS
Bulk Decryption	BISS with license GTBISS Verimatrix with license GTVMX or GTVMXX

System Specifications

Management	
Configuration	Web-based user interface
Monitoring	Inca All Seeing Eye monitoring with optional licenses: GTMON or GTASE
Network Interface	4x GigE ports GT12 module enables expansion of streaming ports to 8 (4 SFP slots for optical or electrical access)
SNMP	SNMP Trap Forwarding

Transport Stream Processing	
Input & Output Codecs	Support for MPEG-2 and MPEG-4, HEVC, SPTS & MPTS, demux & remux
Optimization	Strip null padding, jitter correction, PID & program remap & filter*

* Not applicable to GT21 IP to Analog module

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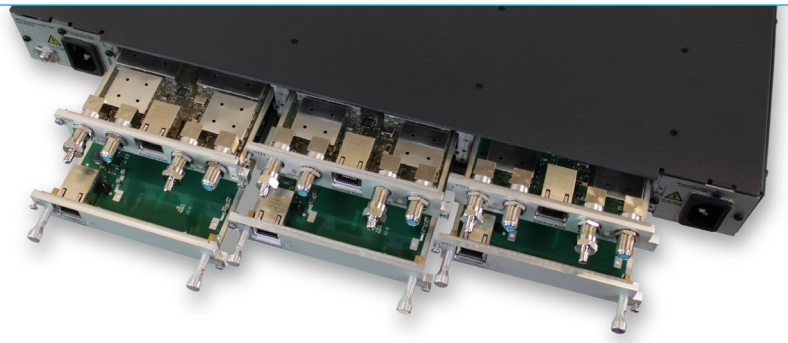
High Reliability • Maximum Flexibility

Excellent Performance • Easy-To-Use



Chassis Options	GT01W0048 (for DC power)	GT01W0110 (for AC power)
Physical	1RU chassis with backplane, fan tray and integrated GigE switch	1RU chassis with backplane, fan tray and integrated GigE switch
Dimensions	19" x 1.77" x 18.6" (483 x 45 x 473 mm)	19" x 1.77" x 18.6" (483 x 45 x 473 mm)
Power Supply	Single or Redundant PSU 48V DC	Single or Redundant PSU 110V AC
Operating Temperature	0 - 45°C	0 - 45°C
EMC	EN 50083-2, FCC CFR 47 Part 15 (Class A)	EN 50083-2, FCC CFR 47 Part 15 (Class A)
Safety compliance	CE, UL/CSA/CAN 60950-1	CE, UL/CSA/CAN 60950-1

Ordering Part Numbers

Chassis Options	
GT01W0110	Tangram platform chassis, base unit with GigE switch for AC power
GT01W0048	Tangram platform chassis, base unit with GigE switch for DC power
GT55W0110	Redundant power supply 110 V AC
GT55W0048	Redundant power supply 48 V DC
Module Options	
GT12	SFP extension module
GT21	Tangram IP to analog (NTSC) module, up to 6x MPEG-2/4 SD or 3x MPEG-2/4 HD plus 3x MPEG-2/4 SD IP sources
GT23	Tangram IP to QAM module, 12x QAM outputs
GT31	Tangram satellite receiver module, 4x DVB-S/S2/S2x & ISDB-T tuners, 4x RF inputs
GT32	Tangram ASI to IP/IP to ASI module, 4x ASI input/output
GT33	Tangram 8VSB/QAM to IP module, 8x ATSC/QAM receivers, 4x RF inputs
GT41	Tangram universal processing module for scrambling, mux/demux, up to 64x SPTS/MPTS (includes GTSTR & GTSYMUX for IP streaming)
Streaming/Multiplexing	
GTSTRX	License option extension for IP streaming in GT31, GT32, GT33 & GT41 up to 128x SPTS/MPTS
GTFEC	IP streaming in/out FEC per module. Up to 128x input & 32x output.
GTSYMUX	License option for multiplexer for GT23, GT31, GT32 & GT33
Audio Licenses	
GTBTS	4x BTSC/ (2 SAP) option for GT21
GTDOL	6x Dolby AC3 decode option for GT21

More license options available, ask your sales rep.

Encryption	
GTAES	License option for AES128 scrambling for GT31 & GT41 for 32x services
GTAESX	License option extension for AES128 scrambling for GT31 & GT41 for 128x services (requires GTAES)
GTLYNK	License option for Samsung Hotel TV LYNK scrambler for 32x services in one MPTS (IP output only)
GTLYNKX	License option extension for Samsung Hotel TV LYNK scrambler for 128x services in GT31 & GT41 (requires GTLYNK)
GTPISCR8	License option for PRO:Idiom scrambler for 8x services (IP output only)
GTSCR	License option: - DVB simulcrypt (CSA) scrambling for GT23 & GT41 for up to 32x services - BISS scrambling for GT41 for up to 32x services
GTSCRX	License option extension (requires GTSCR): - DVB simulcrypt scrambler (CSA) for GT23 & GT41 for up to 128x services - BISS scrambling for GT41 for up to 128x services
Decryption	
GTBISS	License option for BISS descrambling for 8x services in GT31 & GT41
GTVMX	License option for Verimatrix bulk descrambling (AES128) for 32x services in GT41
GTVMXX	License option extension for Verimatrix bulk descrambling (AES128) for 128x services in GT41 (requires GTVMX)
Monitoring	
GTASE	Module license option for rendering TS info & thumbnails in Inca All Seeing Eye - powerful headend monitoring tool with overview mosaic
GTMON	License option for basic transport stream monitoring & logging per module
Redundancy	
GTRED	License option for input redundancy per GT module
GTNRED	License option for N+1 module redundancy per chassis