GDC SX-4000 immersive sound media server and XSP-1000 cinema audio processor

Make a sound investment in your future

HIGHER BITRATE

Decoding higher bitrate images and audio files; live or store-and-forward

BUILT-IN DTS:X DECODER# SUPPORTING IAB STANDARD

Powerful audio processing capabilities to decode IAB and legacy DTS:X soundtracks

SX-4000 Standalone IMB™

FASTER

Processing and I/O capabilities

16 CHANNELS

Full 16 channel immersive sound capability

TRANSCEND 5.1 AUDIO

Unbinds the sound from traditional 5.1 with upmix capability for pre-show and alternative content

XSP-1000 Cinema Audio Processor

Immersive Sound in Digital Cinema

GDC SX-4000 Standalone Integrated Media Block™ is designed to anticipate the future of digital cinema sound. When combined with the 16-channel XSP-1000 Cinema Audio Processor (GDC Immersive Sound Solution), it supports 5.1/7.1 surround sound and the option for real-time decoding to playback DTS:X™ immersive sound. The option enables a high-quality audio experience at a price point that allows exhibitors worldwide to affordably install immersive sound in any size auditorium to deliver realistic, rich sound to a much broader audience. DTS:X delivers true cinematic immersion with best-in-class partners including Samsung Onyx LED, ScreenX and IMAX® Enhanced. Today, DTS:X is installed and committed in over 1,000 screens worldwide, including the world's first and largest Samsung Onyx LED Cinema Screen with DTS:X.

Starting in 2020, SX-4000 will fully support SMPTE's ST 2098-2 immersive audio bitstream (IAB) standard, which represents a major milestone toward the goal of delivering a single interoperable audio format for theatrical distribution. Supporting SMPTE's IAB will bring even more immersive content to the big DTS:X screens worldwide - exactly as the filmmaker intended.

GDC Immersive Sound Solution Overview

GDC Technology, a world-leading digital cinema solutions provider, and DTS are working together to offer a premier immersive sound - DTS:X supporting IAB to cinemas worldwide.

GDC + dts x + IAB = GDC dts x *featuring*

GDC Immersive Sound Solution Playback System Configuration

A-Chain   B-Chain

Essence

| Picture |
| Sound |
| Text |
| HI/VI-N |
| Immersive Audio |
| Track File |

DCP

GDC SX-4000
Immersive Sound Media Server

Digital Cinema Player + Media Block + DTS:X Rendering + IAB Rendering + 5.1/7.1 Audio Upmix

GDC XSP-1000
Cinema Audio Processor

EQ, Bass Management Gain Trims + Master Fader

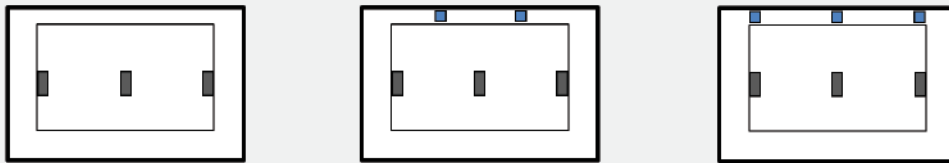Power Amplifiers

Screen
Room Acoustics
Loudspeakers

GDC

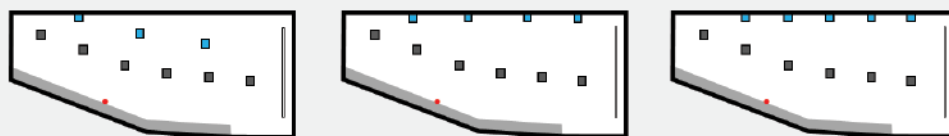# dts X and IAB Technology

Advantages of DTS:X

- Flexible speaker configurations enable installation in auditoriums of all different sizes.
- Retrofit theatres at lower cost, saving up to 50% compared to other 3D sound systems.
- Higher accuracy on conveying sound movement, with object-based audio technology.
- Backward compatible with 5.1 and 7.1 systems.

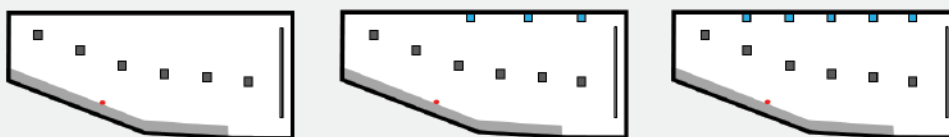## DTS:X – Highly Flexible Speaker Configurations##

- DTS:X supporting IAB is based on up to three layers: the base layer, a height layer and a top layer.
- The base layer covers all the speakers in a typical 5.1 or 7.1 cinema.
- The height and top layers cover all the speakers above the listeners and support height effects.
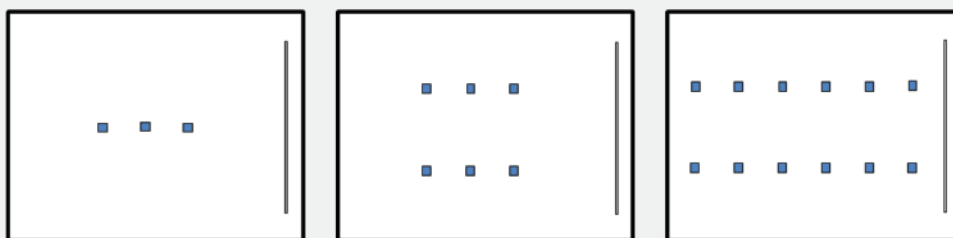
Front views showing screen wall speaker options

Side views showing side wall speaker options for cinemas that do not use ceiling speakers

Side views showing side wall speaker options for cinemas that include ceiling speakers

Ceiling speaker options

GDC Immersive Sound Solution

SX-4000 Standalone Integrated Media Block

GDC SX-4000 Standalone Integrated Media Block (IMB) is designed to future-proof today's digital cinema.

- Next-generation design and hardware, which enables faster processing speed for handling tasks more quickly. This additional processing power opens options for advanced integration, theatre automation, and other value-added capabilities.

- Total 16 audio channels / outputs.

- Ability to handle high-quality live streaming contents such as MPEG4, MPEG2 in 2D or 3D.

- Faster I/O interface such as USB3.0 for faster content ingestion and "live play" from storage devices in emergency situations.

- Additional Gigabit LAN port that can be used for dedicated ingest, theatre automation, and other external devices.

- Upmix capability from 5.1/7.1 to 16 channels for alternative and pre-show contents.

- Built-in full 16 channel immersive sound DTS:X decoder with IAB support (optional).

- Supports SMPTE's "Digital Sync Signal and Aux Data Transfer Protocol" standard (ST 430-14:2015) and SMPTE's Immersive Audio Bitstream (IAB) standard ST 2098-2 (optional).

XSP-1000 Cinema Audio Processor

GDC XSP-1000 Cinema Audio Processor offers 16-channel digital audio processing specially designed for cinema application.

- Low noise digital processing with up to 96 kHz sample rate to ensure superb presentation.

- Robust audio processing engine consisting of audio gain, EQ, and delay controls for accurate theatre calibration.

- Runs on Windows operating systems, allows for complete system configuration, monitoring and firmware upgrades over USB and Ethernet.

- Supports multiple immersive sound formats.

XSP-1000
Cinema Audio Processor
Technical Specifications

Dimensions

Standard 2RU rack-mount chassis

Power Requirement

100-240VAC, 50/60Hz, 30 watts maximum (18 watts typical, 7.5 watts sleep)

Audio Inputs

- PA Microphone - XLR 0.7mV sensitivity
- Calibration Microphone - 3.5mm stereo jack 0.7mV sensitivity with 10V power
- Non-Sync analog input - RCA 75mV to 4.775V
- Auxiliary analog input - RCA 300mV
- Eight-channel analog input - DB25F 300mV
- COAX1 - RCA PCM decoding
- COAX2 - RCA PCM decoding
- TOSLINK - Optical PCM decoding
- AES/EBU 16 Channel 48-96KHz sample rates

16-Channel Analog Audio Output

- 16-Channel Balanced 300mV adjustable. Configurable as 5.1, 7.1 broadband, bi-amp three or five screen channels, tri-amp three screen channels or 13.1

Communication Ports

- DB25F pulse automation
- Serial control - RS-232
- USB for laptop setup
- Ethernet 10/100 - RJ45

Format Selection

- Digital (COAX1, COAX2, TOSLINK, 8 or 16 Channel AES/EBU)
- Analog (8-channel, Non-Sync, Auxiliary, Microphone)
- User 1, User 2 (Configurable in software, e.g., digital 16 channels at lower level, 7.1, 13.1, etc.)

Processing

- 96kHz processing
- One-third octave equalization on all channels except LFE, HI, and VI-N
- Parametric equalizers on LFE
- Synchronization delays for all inputs
- Surround delays for all surround channels
- Crossovers support bi-amp and tri-amp of up to five screen channels plus individual parametric equalization on one to three LFE outputs. Crossover includes a speaker library and allows for user defined speaker systems

Graphical User Interface

The XSP-1000 Graphical User Interface (GUI) operates under Windows XP, Windows 7, and Windows 8. It communicates with one or more XSP-1000 systems simultaneously over USB, Ethernet, or RS232. The GUI is used for system configuration including auditorium equalization (both manual and automatic equalization)

Dynamic Range

Typically 105dB

SX-4000
Standalone Integrated Media Block
Technical Specifications

Physical	
Dimensions	320 (W) x 240 (D) x 63.7 (H) mm
Weight	1.5 kg

Environmental	
Operating Temperature	0°C to 40°C (32°F to 104°F)
Operating Humidity	20% to 90%, non-condensing
Operating Altitude	10,000ft. (3,000m) above sea level*

Power	
Max Power Consumption	75W

Video Specifications	
JPEG 2000	4K - 24, 25, 30 (2D) (optional)
	2K - 24, 25, 30, 48, 50, 60, 120** (2D)
	2K - 24, 25, 30, 48, 50, 60 (3D)
MPEG 2/MPEG 4	SD/HD
Packaging	SMPTE Digital Cinema Package (DCP), Interop DCP

Audio Output	
Digital Uncompressed Audio	16/24-bit AES/EBU,
	16 channels, 48/96 KHz
	3 x RJ45

System Interfaces	
Ethernet	3 x RJ-45 (1000 BaseT)
eSATA	x 2
USB 2.0	2 x USB A-Type Female
USB 3.0	1 x USB A-Type Female
LTC	In & Out (2 x BNC)
REF	Passive loop output
	Video sync input (2 x BNC)
HDMI	x 1 (alternative content input)
3G-SDI	x 2 (alternative content input)
8-port GPI/Os	4 x RJ45 (8 GPIs and 8 GPOs)

Storage Options	Redundant hot swappable up to 32TB

Security	NexGuard® forensic watermarking
	DCI Compliant (FIPS 140-2)

Subtitles	Subtitle overlay
	Projector Cinecanvas support

User Interface	PC/ Mac/ VGA

Third-party Integration Options	
TMS	GDC, Third-party
3D System	RealD, Dolby® 3D, MasterImage 3D, active systems
4D System	D-BOX Motion Code™, CJ 4DX®
3D Audio	DTS:X, Dolby Atmos®, IAB
Closed Captioning Device	Supports SMPTE 430-10

\#   Use of this product feature requires an additional license from GDC
\#\# The configuration diagrams are for reference only
*   Depending on specifications of the hard disk
** Software upgrade and license required

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GDC Technology manufacturing facility is ISO 9001 : 2008 certified.