

# SR-1000

## Standalone Integrated Media Block™

The time-tested IMB with proven consistent performance



GDC has been at the forefront of cinema technology development since the advent of digital cinema. From a commitment to introducing first-to-market solutions to providing outstanding customer service, GDC is recognized globally as a leader of integrated media block (IMB) technology. The SR-1000 is the company's sixth-generation digital cinema media server designed for near-zero maintenance and minimal total cost of ownership.

With its future-proof flexible architecture, the SR-1000 offers several affordable options, including 4K, a built-in diskless CineCache™ 2TB and a built-in 5.1/7.1 cinema audio processor. In addition, there are two other optional upgrades: (i) a built-in 15.1 cinema audio processor is available to replace an external cinema processor for a DTS:X™ installation; and (ii) 16-/24-channel DTS:X decoding capability to feature DTS:X Immersive Audio Solution.

The SR-1000 DTS:X solution supports SMPTE's ST 2098-2 immersive audio bitstream (IAB) standard delivering a single interoperable audio format for theatrical distribution.

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# SR-1000 Standalone IMB™

## Key Benefits

### High Reliability

With built-in embedded power electronics used in medical and military products, the overall system stability is ensured. The SR-1000 is SGS certified for 100,000 hours MTBF.

**100,000  
hours  
MTBF**

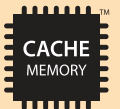
### Compatibility with Series 1, 2, 3 and 4 Projectors

The SR-1000 IMB seamlessly integrates with Series 1, 2, 3 and 4 DLP Cinema projectors including Barco, Christie and NEC to ensure highly reliable and secure content delivery.



### CineCache

The SR-1000 IMB is designed with diskless CineCache (built-in cache memory) available in 2TB offering key advantages:



#### 1 Movie ingest in just 30 minutes without interrupting concurrent playback

CineCache enables incredibly fast content ingest during playback. Content ingest and playback can be performed concurrently without local HDD storage. One average^ movie can be ingested within 30 minutes without interrupting playback. It is no longer necessary to wait for the movie to end to ingest content.

#### 2 Incredibly fast content transfer across IMBs

For IMBs with CineCache, content can be copied at lightning speed across IMBs via 1Gbps LAN without any IMB playback interruption. An average^ movie would only take approximately 30 minutes to be transferred between IMBs.

#### 3 High-speed and high-reliability playback in a 3D dual projector system

CineCache is a superior technology providing very high-reliability playback of 3D content at 120 fps-per-eye in a dual projector system.

^ The running time of an average movie is between 90 and 120 minutes.

### Supports the Playback of Thousands of Movies

Take full advantage of show scheduling with Ultra Storage technology which is capable of storing over 2,000 movies when combined with Cinema Automation CA2.0. The content is available for playback on any screen, any time. You no longer need to ingest content to each screen for playback, saving hours of time for content management operation.

**ULTRA  
storage**

### Built-in Wi-Fi with Intuitive Web-based User Interface

Both audio and video features can be configured and controlled remotely through the easy-to-use web-based UI. The web-based UI connected to the SR-1000 built-in Wi-Fi is user-friendly and intuitive. With drag-and-drop, filtering and navigating functions, operators can easily switch between tabs or pages. Other than accessing the UI through a computer or a laptop, wireless access is also enabled by using handheld devices such as a smartphone or a tablet.



### Built-in Audio Solutions

The SR-1000 offers various built-in audio options of 5.1/7.1/15.1 cinema audio processor and 16-/24-channel DTS:X decoder. DTS:X immersive audio solutions provide full support of SMPTE's ST 2098-2 immersive audio bitstream (IAB) standard, representing a major milestone to deliver a single interoperable audio format. Supporting SMPTE's IAB will bring even more immersive content to the big DTS:X screens worldwide - exactly as the filmmakers intended.



# SR-1000 Standalone IMB™

## Technical Specifications

<b>System Interfaces</b>	2 x Gigabit Ethernet - (1GbE/RJ-45)
	1 x eSATA 6 Gbps
	2 x USB 3.0 (A-Type Female)
	1 x BNC (video sync input)
	1 x HDMI® 2.0 (alternative content input)
	8 x GPI (2 x RJ-45)
	8 x GPO (2 x RJ-45)
<b>Audio Output</b>	24-bit AES3, up to 24-channel, 48/96 kHz (2/3 <sup>1</sup> xRJ-45)
<b>Audio Processing</b>	Up to 24-channel DTS:X decoder
	Up to 15-channel 1/3 octave Graphic EQ and independent bass/treble control (non-LFE channels)
	Parameter EQ for LFE channel (Subwoofer)
	Global delay for all channels and independent audio delay (500ms) for individual channel
<b>DCP Playback</b>	DCI-compliant
	JPEG 2000 <sup>2</sup> - Standard
	2K - 24, 25, 30, 48, 50, 60 (2D)
	2K - 24, 25, 30 (3D)
	Option with upgrade <sup>3</sup>
	HFR option: 2K - 120 (2D); 48, 50, 60 (3D)
	4K option: 4K - 24, 25, 30 (2D)
	MPEG-2 SD/HD
	SMPTE Digital Cinema Package (DCP), Interop DCP, IAB
<b>Video Processing Features</b>	Color-space conversion – supports YCbCr709, Rec.709, XYZ, YCxCz
	Deinterlacing
	Scaler to support 2K & 4K projectors
<b>Control</b>	Web-based graphical user interface
	Cinema Automation - CA2.0
	Automatic playlist programming - CA2.0
	API for control from third-party TMS and NOC systems
<b>Security</b>	NexGuard® forensic watermarking
	FIPS 140-2 (Level 3 security certified)
<b>Third-party Integration Options</b>	Third-party TMS
	Third-party 4D systems
<b>Subtitles</b>	Subtitle overlay
	Projector Cinecanvas™ support
<b>Power Consumption</b>	Less than 75 W
<b>Storage Options</b>	CineCache 2TB
	Redundant local hot-swappable storage (up to 32TB) with CineCache 2TB
	Ultra Storage - CA2.0 Centralized Storage Server with on-board CineCache 2TB per screen
<b>Closed Captioning Device</b>	Support SMPTE430-10
<b>Physical &amp; Environmental</b>	Dimensions (WxHxD) – 320 x 63.7 x 240 mm
	Weight – 1.4 kg
	Operating temperature – 0°C to 40° (32°F to 104°F)
	Operating humidity – 20% to 90%, non-condensing
	Maximum operating altitude – 10,000 ft. (3,000m) above sea level <sup>4</sup>

<sup>1</sup> Depending on the SR-1000 option chosen

<sup>2</sup> Check with GDC on specific frame rate & resolution support

<sup>3</sup> Paid license required

<sup>4</sup> Depending on the specifications of the hard disk

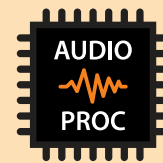
# Built-in 5.1/7.1/15.1 Cinema Audio Processor

## Key Benefits

### Built-in 5.1/7.1/15.1 Cinema Audio Processor

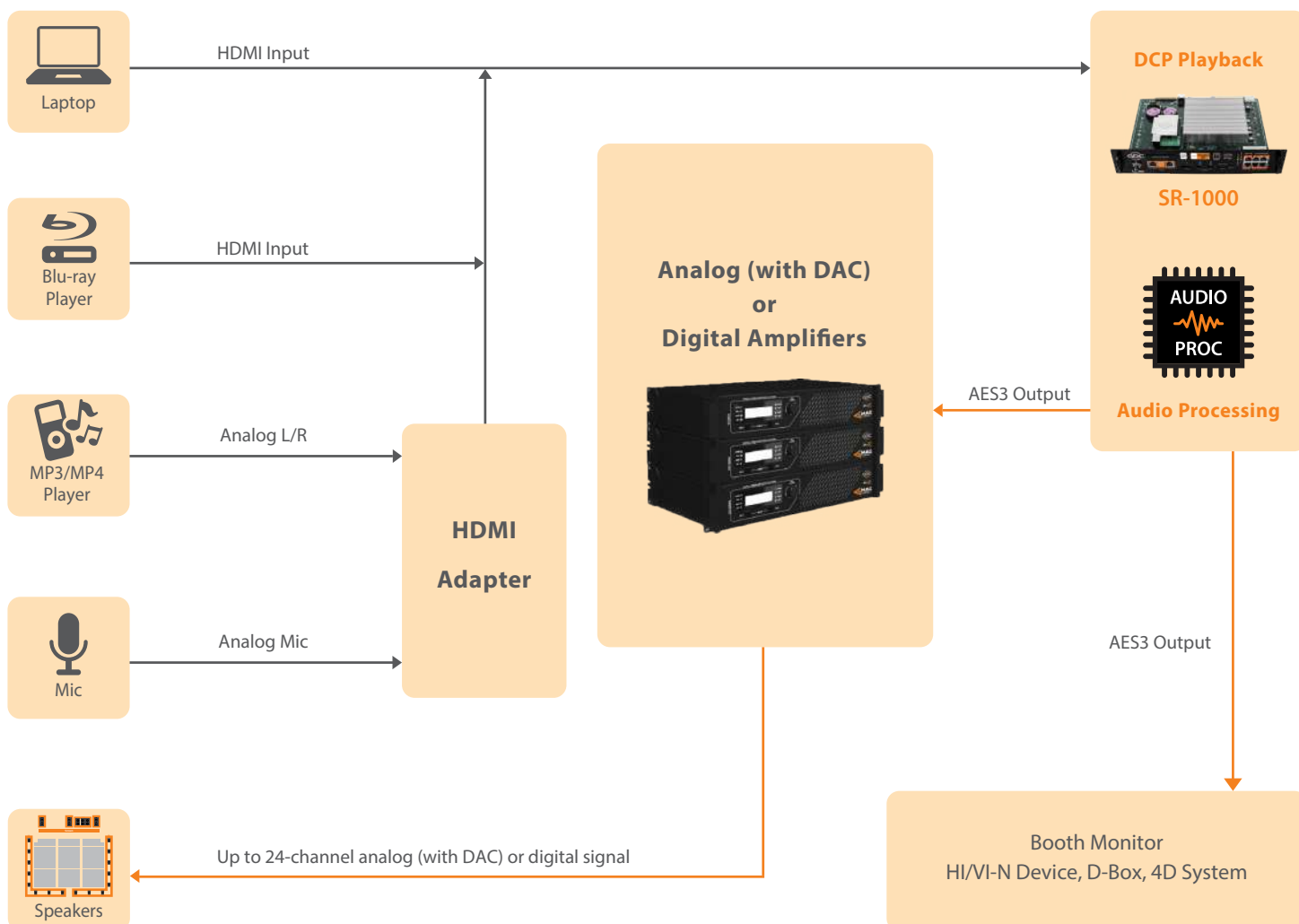
With the built-in cinema audio processor option, the SR-1000 offers the capability to provide superior sound designed for 5.1 and 7.1 PCM uncompressed surround sound functionality – the purest digital sound not “contaminated” by compression. Also, a built-in 15.1 cinema audio processor is available to replace an external cinema processor for a DTS:X installation. The cinema audio processor license that can be procured remotely from GDC Technology, unlocks the optional built-in cinema audio processor’s features. The embedded robust audio processing engine can achieve precise sound system calibration of the theatre by supporting

- 5.1 / 7.1 / 15.1 audio equalizer (EQ)
  - 1/3-octave graphic EQ with independent bass and treble controls (non-LFE channels)
  - Parametric EQ (choice of dedicated general LFE settings or SMPTE standard LFE settings for LFE channel)
- 2-way crossover with selectable filter type and configurable slope (5.1/7.1 only)
- Fader (gain adjustment), global and individual channel delay
- Uncompressed audio processing (including LPCM on HDMI input)
- Provides booth monitor output (5.1/7.1 only)
- Built-in signal generator, mute with configurable fade-in/fade-out times, wide dynamic range
- Audio input level display, easy configuration backup and restore
- Channel routing & duplication



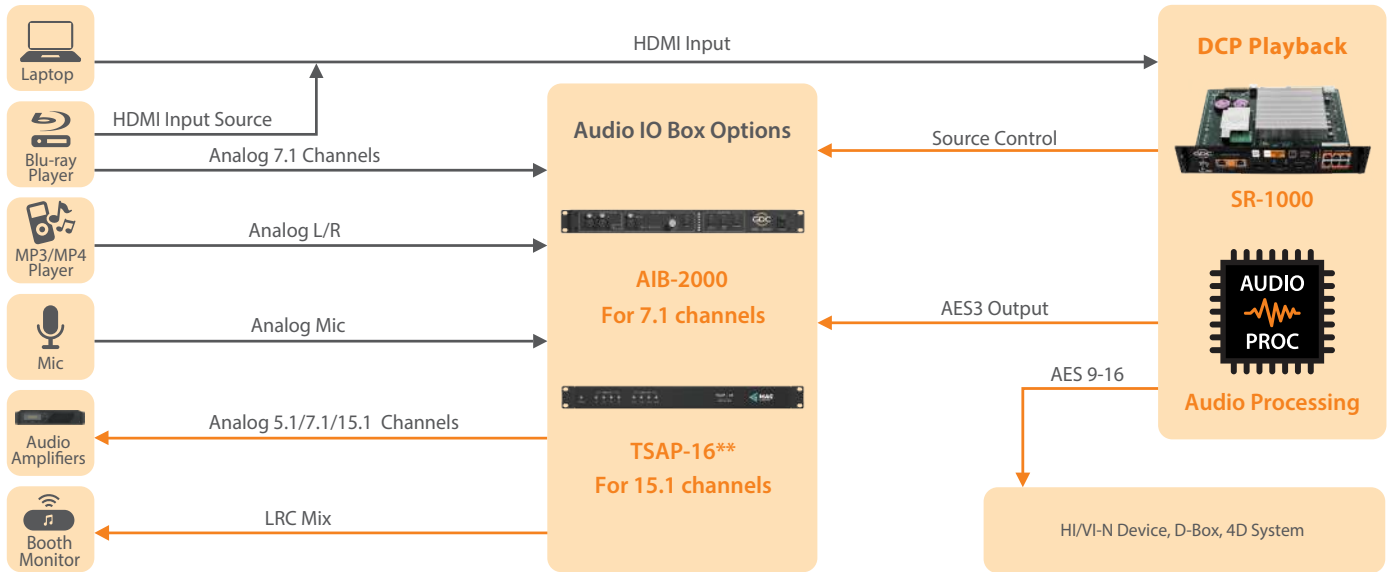
GDC offers an optional Audio IO (Input-Output) Box AIB-2000 for the SR-1000, with a built-in 8-channel premium quality digital-to-analog converter (DAC), to interface with external audio equipment such as analog amplifiers, booth monitor, microphone, and media player. GDC also offers 16-/24-channel DAC options for analog output.

## Solution for SR-1000 IMB and Digital Amplifiers\*



# Built-in 5.1/7.1/15.1 Cinema Audio Processor

## SR-1000 IMB and Optional Audio IO Box to Interface with External Audio Equipment\*



## Technical Specifications

### Audio Source

DCP source	5.1/7.1 surround sound channels and up to 24-channel DTS:X immersive audio supporting IAB
HDMI input	8-channel PCM
Microphone input (via AIB-2000 or HDMI adapter)	Microphone level input with switchable +48V phantom power, adjustable gain and selectable HPF (via AIB-2000)
Non-sync input (via AIB-2000 or HDMI adapter)	Stereo line level inputs
Analog balanced 7.1 input (via AIB-2000)	8-channel analog line level inputs

### Audio Output

Digital audio output	16/24-channel AES3, LCR Monitor, HI/VI-N, LTC (sync for 4D systems) and DBOX motion signal
Analog audio output (via Audio IO Box)	8/16/24-channel balanced analog line level outputs

### Audio Processing

DSP Processing (5.1/7.1/15.1)	32-bit full floating point DSP processing
Graphic EQ for 7/15 channels (non-LFE channels)	1/3 octave graphic EQ (27 bands) Band gain: -6 dB to 6 dB in 0.1 dB step
Bass/Treble for 7/15 channels (non-LFE channels)	Bass level: -6 dB to 6 dB in 0.1 dB step Treble level: -12dB to 12 dB in 0.1 dB step Treble corner frequency: 1K/2K/3K/4K Hz
LFE parametric EQ	Center frequency: 20Hz to 120 Hz in 10 Hz step Bandwidth (Q): 0.5 to 10 in 0.1 step Gain: -12~6dB in 0.1 dB step
LFE low pass filter	Default / SMPTE
Crossover (for 5.1/7.1 only)	Mode: 2-way Filter type: Butterworth, Linkwitz-Riley Filter slope: -6, -12, -18, -24, -36, -48 dB/octave
Global delay for all channels	-250~200ms
Audio delay for individual channel	0~500ms
Volume control (main fader) for all channels	-90dB~10dB (fader 0~10)
Mute (fade in/out) duration configuration	0.2 to 5.0 second in 0.1 step
Channel gain for individual channel	-22dB~8dB in 0.1dB step
PCM channel assignment	Yes
Signal generator	100Hz, 1KHz, 10KHz, PinkNoise, sweep
Audio input level meter	16 channels
Backup and restore	Audio configuration presets (equalization (EQ), crossover, channel delay, global delay and gain)
<b>Control</b>	Web-based graphical user interface Cinema Automation CA2.0 Automatic playlist programming CA2.0 API for control from third-party TMS and NOC systems

### Performance

Dynamic range (via Audio IO Box)	>105dB
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\*The actual system configuration may vary depending on specific application requirements. Please contact GDC for further details.

\*\*Please read MAG's TSAP-16 product brochure for details; TSAP-16 is a plain 16-channel DAC (AES3 to analog audio converter).

# Featuring DTS:X Immersive Audio Solution Supporting IAB

## Built-in 16-channel or 24-channel DTS:X Decoder

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.

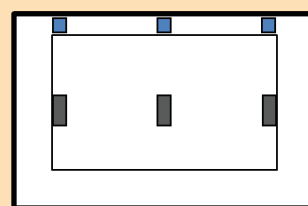
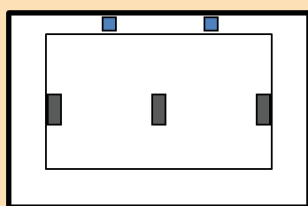
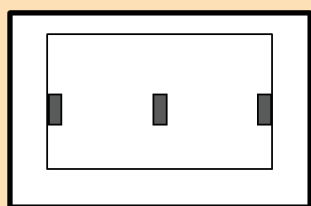


## Advantages of DTS:X Technology with IAB Support

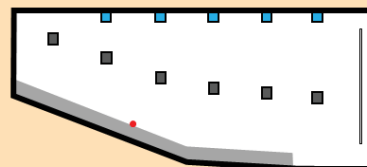
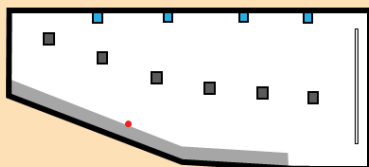
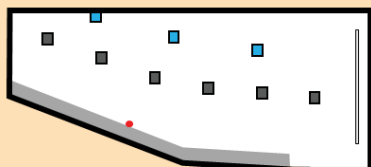
- Flexible speaker configurations enable installation in auditoriums of all different sizes.
- Retrofit theatres at lower cost, saving up to 50% compared to other 3D sound systems.
- Higher accuracy on conveying sound movement, with object-based audio technology.
- Backward compatible with 5.1 and 7.1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

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

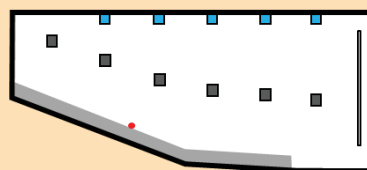
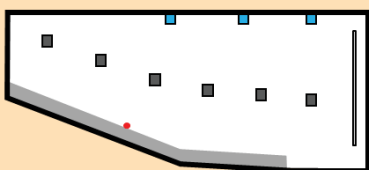
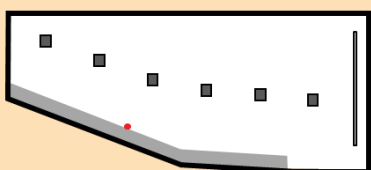
- DTS:X supporting IAB is based on up to three layers: the base layer, a height layer and a top layer.
- The base layer covers all the speakers in a typical 5.1 or 7.1 cinema.
- The height and top layers cover all the speakers above the listeners and support height effects.



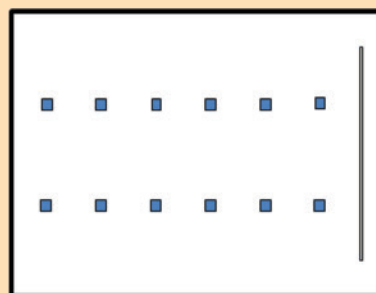
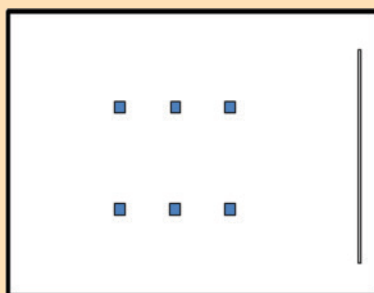
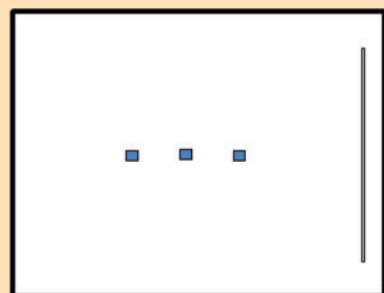
Front views showing screen wall speaker options



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



Side views showing sidewall speaker options for cinemas that include ceiling speakers



Ceiling speaker options

\*\*The configuration diagrams are for reference only