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So, where are we now?
Box office, COVID and release strategies

Silver Linings
> Taking a look at the positives from the last 18 months

Turning 20 in 2020
> GDC Technology's big birthday and new projector, the Espedeo Supra-5000

In Real Life
> In-person events restarted in 2021 and we were there for them

Espedeo Supra™

Building a Mini-Theatre?
Introducing the award-winning Espedeo Supra-5000

PROJECTOR CENTRAL
PROJECTION EXPO 2021
BEST OF SHOW

reddot winner 2020

The world's smallest, quietest, and lightest

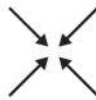RGB+ laser phosphor cinema projector sold exclusively by **GDC Technology**

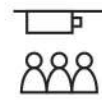### Espedeo Supra-5000 is Ideal for Boothless

Quiet	Light	Small	Ceiling mount	No hush-box

- Features ALPD 4.0 RGB+ laser phosphor technology to deliver vibrant colors.

- Light engine and lens are designed with IP5X level of dustproof protection for maximizing brightness.

- Affordable DCI-compliant projection system offering amongst the lowest TCO thanks to its architecture and advanced technology.

- GDC's All-in-One Board provides built-in CineCache™ 2TB = No local HDD required. Incredibly fast ingest during playback and fast transfer across IMBs.

- Optional built-in cinema audio processor for 5.1/ 7.1 uncompressed surround sound with crossover.

- Supra Command Center: an intuitive web-based control UI connected to the projector's built-in Wi-Fi that can be accessed with a computer, a laptop or a tablet.

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Powering your digital cinema experience

@GDCTechnology

GDC: a 20th Birthday and an Exciting New Projector

GDC Technology (GDC)

Celebrating its 20th anniversary in 2020, **Peter Knight** learns more about this technology company that many will have heard of, but few will really know.

Founded in 1999 and HQ'd in Hong Kong, GDC has become one of the leading global digital cinema solutions providers of the previous 20 years, bringing many innovations to market. GDC has the largest installed base of media servers and TMS' (Theatre Management Systems) in the Asia-Pacific region - and the second largest globally.

When GDC launched in 2000, founder, chairman and CEO, Dr. Man-Nang Chong saw a viable opportunity for products and solutions that could advance the cinema industry. The first product GDC developed was a software-based digital server playback system for cinema.

Today, the company develops, manufactures, and sells scalable cinema automation systems and cinema-enterprise software. GDC's range of products includes Theatre Management Systems (TMS), Circuit Management Systems (CMS) and Network Operation Centres (NOC), digital cinema servers, and now digital cinema projectors. The company also provides a comprehensive suite of digital cinema products and services to provide exhibitors and distributors with a one-stop solution for exhibiting all digital content formats. During its 21-year history, GDC has been awarded 35 patents globally, including in the USA and China, and has established a global market presence with 13 offices and 37 local service centres around the world.

New Opportunities

Despite the challenges of the last 18 months, GDC launched their first DCI-compliant projector during 2020: the Espedeo Supra-5000 RGB Plus laser phosphor cinema projector ("Supra-5000") - and it offers an entirely new range of possibilities.

The potential to install this projector in buildings that previously couldn't operate practically as movie auditoriums has increased, given office and retail store closures. This current situation allows the projector to provide greater flexibility in terms of the locations that can become cinemas - GDC even has examples of screening rooms, lounges and restaurants, luxurious home theaters, holiday resorts, condominiums and yachts (and, potentially, maybe even narrowboats?). And this can be extended to the new crop of boutique cinemas that are opening up in 'non-cinema' buildings. Such is the flexibility of this projector that in October 2020 it was used to project a movie in a cable car!

Beyond this, the form factor of the projector allows for installation onto a standard AV truss, providing more flexibility

Moving into the Projection Field

While a lot of focus from other projector manufacturers has been towards PLF and large screen auditoriums, GDC deliberately designed the Supra-5000 for smaller mini-theatres with 10-50 seats and a screen size of up to six meters, to cater to the emerging boutique cinema concept and the growth of the mini-theatre and private screenings.

Boothless cinemas (where the projector is housed inside the actual auditorium, rather than the projection room) have required acoustic ("hush") boxes to manage the sound levels of the cooling fans, alongside managing the challenges of performing projector maintenance. However, with the launch of the Supra-5000, GDC resolved these challenges with a light, quiet and compact projector that did not require installation in a hush box.

"Typically, we design and manufacture products by collaborating with our distribution and exhibition partners. For the Supra, we collaborated with Appotronics and Texas Instruments from conception to design to manufacturing," said Dr. Chong.

The Supra-5000 is likely to be the world's smallest DCI-compliant DLP laser projector on the market in terms of overall size at just 480mm (wide) x 803mm (long with lens), weight (47kg with lens and an additional 2.7kg with the 3D system installed) and quiet, with a noise level that is below a whisper (35dB(A)). This makes the projector similar in size and weight to a high-end AV home theater projector, and perfect for private home cinemas, hotels, and yachts. But despite its small size, the Supra-5000 is designed with powerful electronics, attaining a 2000:1 contrast ratio with 5000 lumens.

The small size of the Supra-5000 is achieved with GDC's All-In-One Board, which integrates the SR series media server, Integrated Cinema Processor (ICP) and DMD (DLP chip) formatter boards onto a single board. This also lessens the need for cooling and other electrical requirements - the Supra-5000 uses a maximum of 750W, about the same as two laptops. This helps to lower the total cost of ownership (TCO), and improves reliability and serviceability (fewer parts to manufacture equals lower overall cost).

for DCI movies to be projected in mobile, outside or pop-up locations. With the Supra-5000, GDC has created a projector that can be best described as a 'cinema-in-a-box' with just the addition of the amplifiers, speakers and screen needed, allowing for a more cost-effective option for customers on a budget. And while the risk of losing a show may feel higher with everything being a single point of failure, the chances of this happening in reality are low, as it is designed with near-zero maintenance electronics and tested for 100,000 hours Mean Time Between Failures (MTBF).

A Built-In Audio Processor

The Supra-5000 is available with an optional built-in digital cinema audio processor to play back DCP-format movie titles in 5.1 and 7.1 uncompressed surround sound. This can either be used directly with digital amplifiers or for older analogue amplifiers via a piece of hardware (Audio IO Box AIB-2000) that also includes other inputs. The audio processor is on the same All-In-One Board and available as an upgrade at any point as it only requires an optional software license (along with obtaining the AIB-2000). The AIB-2000 is an external 8-channel digital-to-analogue converter (DAC) to interface with external audio equipment such as analogue amplifiers, booth monitor, microphone, and media players, the input

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(Top right) Dr Man-Nang Chong

sources of which can be switched via ethernet.

3D

A standalone 3D polarized system was specially developed for the Supra-5000. The PM-2000B is designed for easy installation and operation by detecting 2D and 3D signals, which enables the system to shift corresponding working positions automatically. The PM-2000B 3D system can be used in any orientation whether the projector is fixed on a pedestal or hung on a ceiling and only adds an additional 2.5kg to the overall weight of the projector system.

And There's More...

Other unique features of this projector include a customised magnetic case cover that allows customers to add an image matching the rest of the ceiling to help the projector blend into its surroundings. Or to be bolder by adding a corporate logo.

The Supra-5000 also has an integrated IMB that supports the GoGoCinema cinema-on-demand platform with the GDC Cinema Automation 2.0. It enables the playback of thousands of movies and auto power-on/power-off for the projector's laser according to the pre-set schedules. With the All-In-One Board, it provides diskless CineCache (built-in cache >

A View from the Top
Dr. Man-Nang Chong
Chairman & Chief Executive

"The traditional movie theatre is evolving. And this time it's evolving to meet the demands of consumers seeking a big-screen cinematic experience in an intimate setting with amenities offered by the mini-theatre. We are thrilled to launch the Espedeo Supra-5000 which allows venue owners to build a mini-theatre much more quickly with fewer construction constraints and Furniture, Fixtures and Equipment (FF&E) costs," said Dr. Man-Nang Chong, founder, chairman and CEO of GDC Technology Limited.

"Entering the projector market is a big step forward for GDC. The mini-theatre and boutique cinema market is growing quickly and globally. With Espedeo products, we are delivering the advanced cinema technology and easy-to-build concept to our dealers and customers entering the emerging trend."

memory), helping to reduce the risk of equipment failure and assist with maintenance as there are no moving parts to wear out. Content ingest and playback can be performed concurrently without any local HDD storage. One average movie can be ingested within 30 minutes without interrupting playback. The Supra-5000 also comes complete with a built-in Wi-Fi router so that wireless access is available straight out of the box.

Already Award-Winning

Although the projector has not been able to receive as much attention as it deserves in terms of trade shows and demonstrations it has already become a multi-award-winning device. It received the "Best of Show" award from Residential Systems and TWICE, along with the "Best of Show" from ProjectorCentral.com's Projection Expo 2021. And 2020 saw the projector receive the 2020 Red Dot Award in the category of "TV and Home Entertainment", selected by the jury for its sophisticated technical features.

The projector was described by the Projection Expo editorial staff in the following way:

"There's nothing out there that's quite like GDC's Espedeo Supra-5000. A 5,000-lumen, 2K-resolution laser projector that distinguishes itself in both the cinema and high-end home theatre worlds by coming equipped with all the internals to play the first-run, copy-protected Digital Cinema Initiative (DCI) packaged content hosted by your local movie theatres. Along with achieving full DCI-P3 colour gamut, the Supra-5000 is built on a compact chassis and designed for quiet operation (less than 35dbA) for mounting directly inside mini-theatres, screening rooms, yachts, or other confined

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A private cinema screening set up

\v
GDC's SR-1000 IMB Server

spaces. It is all made possible by GDC's proprietary technology that integrates a DCI-compliant media server, an integrated cinema processor, and a DMD formatter board on one circuit card."

High praise, indeed. Meanwhile, the jury of the Red Dot Award said, "Thanks to its sophisticated technical features, the Espedeo Supra opens up areas where professional projection has not been possible before."

Other Products

Due to the reliability of GDC's solutions, the most recognized cinema display technologies in the world (including digital cinema projector and cinema LED screens) use GDC's customized IMBs. Here is a whistle-stop tour of a small selection of other product ranges from GDC:

Powerful Extensibility of SR Media Server

The SR-1000 IMB has the CineCache, along with a built-in 5.1/7.1/15.1 cinema audio processor that has recently been updated to be able to allow immersive audio through its

16-channel DTS:X output. It's due to be upgraded in early 2022 to become 24-channel as part of the process to roll out DTS:X IAB on GDC IMBs.

Keeping Previous Projectors Alive

With technical support of Series 1 (S1) equipment coming to an end, especially when it comes to the Dolphin Boards in the S1 servers, GDC has designed and developed a solution that allows for the use of their SR-1000 IMBs to extend the life of the S1 projector. This allows exhibitors to continue to use their S1 projectors until they are ready to update to a newer model. And because the kit is largely a physical enclosure it means that the IMB can be transferred to the new projector. The GDC solution does not just work for the Series 1 equipment, but for the Series 2, 3, and 4, as well. Being projector agnostic it will work on Barco, Christie, Sharp-NEC and Sony projectors.

Cinema Automation 2.0

Since it was released in 2017, GDC's Cinema Automation 2.0 has been installed at over 150 locations consisting of 1,200 screens worldwide. It was one of the first cinema hardware and software solutions to make use of the developing machine intelligence, to help exhibitors to increase efficiency and reduce human intervention in the day-to-day tasks. The software does as the name indicates, automating the show playlists, ingesting and transferring content, scheduling showtimes and checking the quality of the presentation.

The system can be extended so that it can automatically turn on and off pieces of sight and sound equipment right across the cinema, based on operation hours, saving both time and electricity, and also reducing the risk of this being forgotten or missed.

SCL Mk2 Centralized Playback Server

CA2.0 is built around the SCL Mk2 Series Centralized Playback Solution. The SCL Mk2 server is able to live-stream a movie through the cinema's network to one, or more, auditorium's diskless SR-1000 media server. This eliminates ingesting the content to each media server's local storage since it is no longer required. The SCL Mk2 server offers four different models supporting up to 30 auditoriums.

With the SCL Mk2 centralized server series, the operation efficiency is increased by not needing to transfer, ingest, and move content from one auditorium to another. Each auditorium's SR-1000 shares a large live-streaming library server which stores up to 2,000 movies, instead of just a handful, due to the constraints of local storage devices. Most importantly, SCL Mk2 offers a fail-safe design with a back-up mechanism available to ensure every screening continues autonomously, thanks to the SR-1000's highly reliable CineCache which allows full-speed ingests even during playback. In addition, the SCL Mk2's central storage with machine intelligence allows the show playlist to be generated automatically. **CT**

GDC's Espedeo Supra-5000 Projector Review, CineEurope 2021

CineEurope 2021 in Barcelona was an occasion for GDC to show off the Espedeo Supra-5000, as well as being the first opportunity to experience this projector for myself. I certainly wasn't disappointed.

Immediately noticeable was that it was slightly larger than anticipated - but still considerably smaller than other DCI projectors. The mini-theatre auditorium in GDC's conference suite demonstrated the Supra-5000's capabilities with a 7.1 audio system from MAG Cinema. The projector was installed inside the mini-theatre at the back of the room on a truss. And the team noted that, as the projector is Risk Group 2, it's safe for people to physically be around it, unlike other DCI laser projectors.

Impressively, the air conditioning in the room was noisier than the projector itself, even when the laser was running without any audio on-screen. The air conditioning wasn't particularly loud, the projector just lived up to its marketing. And the picture quality was clean and crisp, demonstrating the blackest of blacks alongside bright, vivid colour.

The Supra-5000 has a cinema audio processor built-in onboard, and this was being used for playback 5.1 and 7.1 uncompressed surround sound. The 7.1 audio was warm, despite having to be played at a lower level to not disturb anyone nearby.

While I wasn't able to test the projector's user interface (UI) under stress, the UIs on both laptop and mobile device appeared easy to use with the important features clearly indicated.

I loved the projector, and it was one of my highlights of this year's CineEurope, proven by the fact that I encouraged a number of other people to go and see it for themselves. The Supra-5000 lives up to its marketing, but not only that, it offers some new opportunities to the market.