

AV-ICN_x

AV INTEGRATION COMMUNICATION NETWORKING



AV Integration of Samsung experience centre in Bangalore by Mumbai based AV consultancy Hewshott India

Expo Review

Infocomm India Expo 2019

Focus - BenQ

Interview with Jeffery Liang & Rajeev Singh

AV Consultant Perspective

Interview with Karan Jaitly, Hewshott

Executive Speak

Interview with Rishubh Nayar, Christie

Associations

Interview with Wendy Griffiths, Cedia

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Rajeev Singh, Managing Director, BenQ



Jeffery Liang- President of BenQ APAC Region

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Wendy Griffiths, Vice President Global Development, Cedia

CEDIA™

AV - ICNx TECHNOLOGY

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Incorporating

BROADCAST VIDEO PRODUCER

AURORA MULTIMEDIA LAUNCHES A RANGE OF PRODUCTS

Aurora Multimedia took the market space up by a storm with its range of new releases and updates at the recently concluded Infocomm India 2019.

The complete range of new products include:

AirShare AS-100:

It has a 3 Wired HDMI Inputs that sup-



AirShare AS-100

port 4K60 4:4:4, a VGA Input for legacy devices and the world's first.

In Wireless Presentation mode, this can work in 3 different modes for very easy connection. 1) Connect USB Dongle & share your presentation with out even pressing a button. 2) Connect to In-Built

Wifi of AS-100, Share your presentation instantly 3) Connect to Client Network & Share your presentation Securely and from any device without disturbing existing disconnect from your resources. This also has capability of connecting Multiple users at same time, also share 4 Contents in Quad view format.

IP-24PoE+ 24 Port 10G PoE+/PoH+ 1RU Injector:

The IP-24PoE+, the first ever 24 port PoE+/PoH+ injector to deliver power on a 10G

connection. It is compatible with any standard 1G or 10G network switch and will deliver up to 30 watts of power per port.

This allows for a clean installation of any 1G or 10G PD capable device, alleviating the need for local power supply. Aurora designed the IP-24PoE+ for its IPX

Series SDVoE AV over IP product line as it currently is the only 10G AV over IP with PoE. It can also supply power to HDBaseT PoH products providing remote powering as well.

SDVoE 4K AV over IP, Transceiver Box and Wall Plates:

This is the only encrypted 4K60 4:4:4 10Gbps AV over IP transceiver box and wall plates, utilizing their patent pending IPBaseT technology based on the BlueRiver NT+ SDVoE platform. The IPX-TC3 series compliments the growing line of AV over IP products.

The IPX-TC3 and IPX-TC3 Pro is the only 10Gbps SDVoE transceiver to have redundant fiber version and selectable copper fiber in a single unit.

4 ReAX IP Control Units:

The ReAX control units are a web-based IP control system. Custom programming and GUIs created with our free ReAX Core

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TRIPLEPLAY AND ONELAN UNITE TO CREATE DIGITAL SIGNAGE AND IPTV POWERHOUSE

UNIGUEST ACQUIRES TRIPLEPLAY TO COMPLEMENT ITS ACQUISITION OF ONELAN

Tripleplay announced that it has been acquired by Uniguest; following its acquisition of ONELAN in June 2018. Merging Tripleplay into the Uniguest portfolio provides mutual access to technology, expertise, and partners as the digital signage industry continues to undergo a period of consolidation amongst providers.

As part of Uniguest, this new division will be a key component of a global organisation that enables Tripleplay and ONELAN to leverage the group's financials and support infrastructure to drive significant global expansion and service plans.

With ever-increasing demands to deliver live TV and video as part of a digital signage solution across key verticals, combining the respective strengths of the two organisations ensures customers can confidently access the best-in-class IPTV and digital signage as a complete solution from a single global organisation to meet

their customers' specific requirements.

The acquisition presents the strategic opportunity for Uniguest to market Tripleplay's award-winning IPTV and interactive portal to its own hospitality and senior living clients, while extending its reach with a complementary partner base for products; specifically, in the stadium, large



enterprise, and banking verticals.

The combined Tripleplay and ONELAN organisation will be led by **Steve Rickless**, Tripleplay's CEO, with the support of the Tripleplay and ONELAN executive teams. Tripleplay and ONELAN will continue to

operate from their respective offices with their current team members.

"This acquisition is a game changer for Tripleplay," Rickless said. "Our solutions combined with the ONELAN product set will be one of the most powerful combinations available in today's market, and the partnership will allow us to deliver innovation and enhanced service."

Hugh Coghill-Smith, ONELAN CCO, added, "As our clients' needs continue to expand, we are very excited to combine the Tripleplay and ONELAN solutions to provide additional value."

"With the successful acquisition and integration of the ONELAN business into our portfolio in 2018, we reviewed a number of providers who could offer complementary solutions which aligned with our core strategy to deliver digital engagement to the industries we operate in," **Jeff Hiscox**, Uniguest CEO, commented.

AOTO OFFICIALLY INTRODUCES ITS NEW VISUAL IDENTITY

AOTO has officially begun to adopt the new organization visual identity (VI) since 1st Sept to upgrade the company's image and catch up with the trend of this age. The new VI deeply reflects AOTO's "intelligent+" development strategy for the future 20 years. It also emphasizes the international vision and customer-oriented value.

VI Implication

- The new VI combines the word and the icon and adopts the flat design, which is in line with the international mainstream logo design concept, reflecting

the company's development.

- The letter 'A' represents 'Aced', it is also the initials of 'AI', means that AOTO is



not only the leader of the LED industry, but also the advocator and promoter of the machine learning technology.

- The solid capital 'A' and 'T' express the company's new slogan 'Attractive Technology', aiming to make life more convenient and brighter.
- The two capitals 'O' is composed of a

dotted matrix symbolize a pair of pupils of human, as well as a telescope looking forward.

- Each 'O' consists of 1080 dots, which means 1080 high definition. Its circular structure symbolizes perfection and harmony.
- The brand color is blue, representing innovation and technology and the foundation of AOTO's development around the world.

AUDINATE RELEASES MAJOR UPDATE TO DANTE DOMAIN MANAGER

UPDATES BRING SUPPORT FOR SMPTE 2110 AND AES67, IMPROVED INSTALLATION OPTIONS, GPS CLOCK SYNCHRONIZATION, AND MORE

Audinate announced version 1.1 of Dante Domain Manager that brings key improvements and new features to users and integrators: new flexible installation options, improved email alerts and notifications, support for SMPTE 2110 devices and secure access to LDAP and SMTP servers.

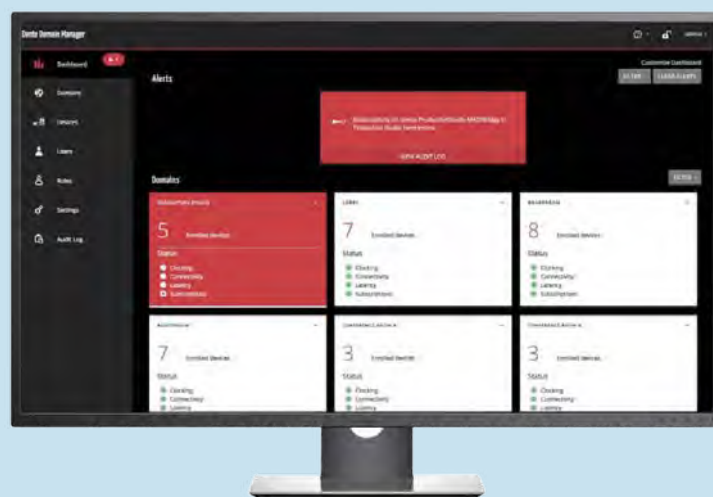
Dante Domain Manager gives integrators, AV specialists and IT managers the ability to better manage Dante AV networks by creating groupings of Dante devices called "domains" – which are zones of products. It enables administrators to secure their systems with user level authentication by domain and to scale their installations by supporting Dante audio across routed IP networks with multiple subnets. Administrators looking to route audio between studios, buildings or even across entire campuses may now do so regardless of network topology.

Version 1.1 is now delivered as a complete ISO package, making it fast and easy for users to install and setup Dante Domain Manager to suit their needs and applications. The ISO package may be used in virtual environments such as VMware

ESXi, Oracle VirtualBox and Microsoft Hyper-V, or it may be installed directly onto a "bare metal" server with no additional software required.

Broadcasters can now combine SMPTE 2110 and Dante devices for seamless workflows, bringing Dante's "one click" ease of connectivity to radio and TV studios with secure, user-authenticated access. New GPS clock synchronization enables Dante connectivity between facilities over long distances, allowing broadcasters, educators and IT managers to distribute real-time media at unprecedented distance and scale.

Support for LDAPS and SMTPS brings greater security and confidence to network managers by encrypting communication to



Dante Domain Manager

those servers.

"We are excited to introduce new features in Dante Domain Manager in response to customer feedback," says **Neil Philips**, Senior Product Manager at Audinate. "The introduction of SMPTE 2110, GPS synchronization, LDAPS and SMTPS support and improved email alerts make Dante Domain Manager an invaluable tool for administrators across multiple markets, enabling them to efficiently manage large scale Dante systems."

CYBERNETYX TECHNIK ANNOUNCES RAMYA CHATTERJEE AS THE NEW CEO

Cybernetyx Technik announced the appointment of **Ramya Chatterjee** as the next Chief Executive Officer (CEO). Mr. Chatterjee, who currently serves as the Director – Sales (Visualization & Entertainment), Barco Electronic Systems Pvt. Ltd. will succeed **Eduard Metzger** as the next CEO of Cybernetyx Technik. This change will become effective from 16th September 2019.

On this occasion **Nishant Rajawat** (Chairman & Managing Director, Cybernetyx Technik) said "I am extremely delighted that Ramya Chatterjee is going to join us as Chief Executive Officer. In the first phase of his association with us as CEO, Mr. Chatterjee will be focusing on multiple new product launch, formulating GTM strategy & ecosystem formation, organizational restructuring & productivity maximization, driving exponential revenue growth world-wide, process Improvements, adopting best practices, maximizing company's valuation, gunning for our upcoming capital expansion and private/public investments /IPO".



Ramya Chatterjee, CEO, Cybernetyx Technik

Ramya Chatterjee expressed that "It will be my second stint with Cybernetyx Group. From Dec 2012 to Dec 2016, I worked with Cybernetyx Technik as Director – Sales & Marketing and was

instrumental in transforming a technology start-up to a robust multi-million multi-national global enterprise in a short span, brought multiple new products to market, formed strategic distribution channel ecosystem, impacted more than 15 million Presenters, Educators and Learners across the globe, successfully managed and mentored team of performers; acknowledged for recruiting and developing leaders with an equal desire to win, identified new business avenues and grew business by 10X (Volume growth) & 5X (Revenue growth) in just four years, created a global sales presence spanning 70 countries indirectly and 25 countries directly within a short span. I am extremely excited to have this great opportunity to lead Cybernetyx Technik as the CEO".

AUDAC EXPANDS ATEO LOUDSPEAKER RANGE

AUDAC INTRODUCED MK2 VERSIONS OF ATEO4 AND ATEO6

AUDAC introduced MK2 versions of the popular **ATEO4** and **ATEO6** wall mount installation loudspeakers. Externally the product retains the same design but inter-

nal improvements including an upgraded crossover deliver an ultra-flat frequency response for exceptional fidelity.

The ATEO range has also been expand-

ed with the addition of 16 Ohm versions of the ATEO4 and ATEO6. These "D" versions of the ATEO design wall speakers offer an even more cost-effective solution for small installations where a 100V system is undesirable or not required.

The 16 Ohm speakers offer a simple solution for small retail and residential applications, allowing up to 4 speakers to be connected in parallel to a single amplifier channel. By removing the 100V transformer from the "D" versions, you get the same build quality and listening experience.

The ultra-compact ATEO2 completes the range with a loudspeaker that is small enough to be unobtrusively hidden in almost any environment. The ATEO2 is available in both standard 8 Ohm version and 16 Ohm "D" version.



AUDAC ATEO6

www.av-icnx.com

CHRISTIE HS SERIES LASER PROJECTORS LIGHT UP FAÇADE OF DANDI KUTIR WITH STUNNING 3D PROJECTION MAPPING SHOW

Christie HS Series 1DLP laser projectors deployed for a 3D projection mapping show on the façade of Dandi Kutir are mesmerizing visitors with vivid and lifelike visuals that celebrate the life and works of Indian independence and civil rights leader, Mahatma Gandhi.

The 30-minute show, which features stunning projections using 16 Christie D20WU-HS laser projectors on the surface of the salt-mound-shaped museum, is the second largest permanent projection installation in India after the Statue of Unity.

Since its inauguration by Indian Prime Minister Narendra Modi earlier this year, the show has become a huge attraction that draws thousands of visitors to the museum on a daily basis. The installation and commissioning of the show was jointly undertaken by Christie's Indian

and nation," said **Amit Gupta**, Managing Director, Nolabel Immersive. "Having used Christie visual solutions for various multimedia exhibits in the Dandi Kutir museum to great success, the museum decided that Christie's high-brightness laser projectors are best-suited to deliver the visuals required for this new light and sound musical."

The D20WU-HS was ultimately chosen as it has the best



Christie D20WU-HS laser projector

lumen-to-weight ratio – able to achieve the brightness needed for bold and colorful visuals with 20,600 ISO lumens, and yet weighing less than 100 lbs. (42 kg) for easy access and maintenance. Gupta noted that after a detailed site survey of the surrounding areas, the team decided that the

ahead smoothly as planned. Due to its light weight and omnidirectional capabilities, we were able to easily lift and set up the projectors without the difficulties associated with larger projection systems." Gupta added.

Michael Bosworth, Executive Director, Head of Enterprise for Asia Pacific, Christie, commented, "We are delighted that Dandi Kutir museum has chosen our high-performance and robust D20WU-HS laser projectors for this new 3D projection mapping show on its iconic façade."

Located in Gandhinagar, the capital of India's state of Gujarat, Dandi Kutir is the biggest permanent museum in the world based on the life and teachings of one man – Mahatma Gandhi. The museum takes the shape of a giant cone resembling a salt mound, which is a symbol of Gandhi's historic Dandi March in 1930. Measuring 90 meters in diameter and 41 meters in height, the three-story museum creatively utilizes sophisticated technologies such as 3D mapping, holography, 360 projection, and transparent LED screens to provide a rich, multi-layered experience for visitors.



3D projection mapping show on the salt-mound-shaped museum

partners, *Bombay Electrical* and *Nolabel Immersive*.

"We are very pleased and honored to be involved in the creation and execution of this major 3D projection mapping show, which highlights Gandhi's principles of cleanliness leading to self-empowerment and therefore creating a base for a decentralized, self-administered society

projectors had to be installed within two structures overlooking the left and right side of Dandi Kutir's façade. The D20WU-HS were then fitted in stacks of eight on each side to provide full coverage on the museum's wall.

"Once we had identified the appropriate positions for the placement of all 16 projectors, the rest of the installation went

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SREE KALIDAS M-PLEX CHOOSES CHRISTIE PROJECTORS AND VIVE AUDIO FOR ITS NEW MULTIPLEX IN KERALA

THE FIRST MULTIPLEX IN KERALA TO FEATURE RGB PURE LASER PROJECTORS AND VIVE AUDIO

Sree Kalidas M-Plex has become the first cinema complex in the southern Indian state of Kerala to deploy its next-generation cinema projectors featuring Christie Reallaser illumination and Vive Audio.

Located in the capital city of Thiruvananthapuram, the newly completed multiplex has seven well-appointed auditoriums to deliver the most exciting and lifelike cinematic experience to movie-goers. The installations are undertaken by Christie's Indian partner, TSR PROVA (TSR), which is actively pushing for the adoption of Christie's latest cinema technology across the burgeoning Indian exhibition market.

The multiplex's two premium auditoriums are powered by Christie's RGB pure laser systems comprising the CP4330-RGB and CP2320-RGB. The remaining five halls are fitted with the robust and reliable Christie CP2215 cinema projectors. In addition, all seven auditoriums are equipped with Christie Vive Audio, which combines planar ribbon drivers,



Sree Kalidas M-Plex deployed with Christie Reallaser illumination and Vive Audio

line array speaker design, and Class D amplification.

"We're delighted to become the first cinema complex in Kerala to offer leading edge RGB pure laser projection and audio technologies to discerning movie-goers who want the highest visual and audio quality," said **P. Balakrishnan Nair**, operations director, Sree Kalidas M-Plex.

"Christie cinema projectors, particularly its family of RGB cinema projectors based on the Reallaser illumination platform, offer the best visuals and a unique, compact design. Combined with the amazing acoustics of Christie Vive Audio, our technologically advanced multiplex will offer a spectacular cinematic experience for audiences in southern India."

OHM SOLUTIONS IN BALURGHAT NATYA CHARCHA KENDRA

Balurghat Natya Charcha Kendra is conceptualized along with the National School of Drama, New Delhi, this Natya Academy has an open air Studio, a Blackbox Studio, hostel dormitories for accommodation, VIP Rooms, a round-table conference hall, a library and a landscaped garden among other things.

Recently, OHM Solution brings sonic fidelity to this mecca of performing arts.

Multi-purpose Solutions

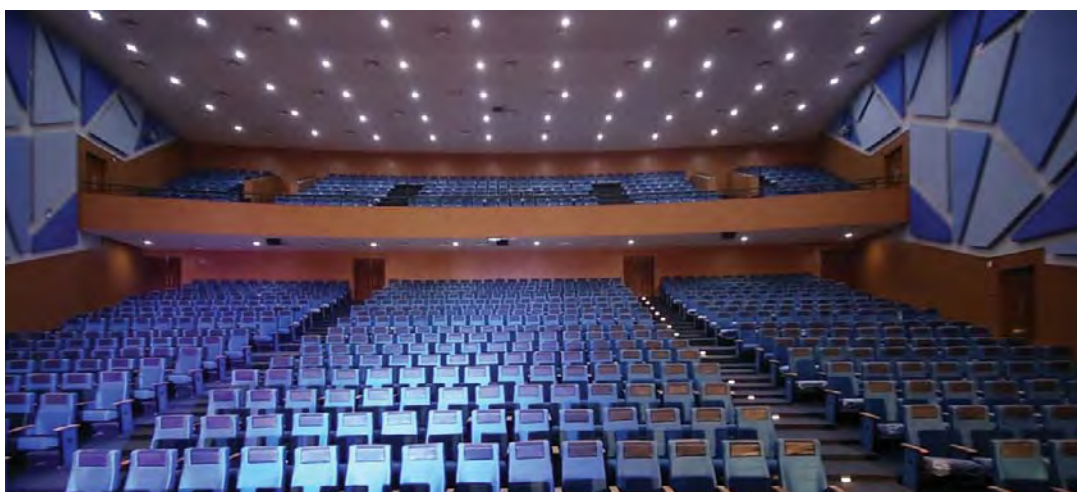
Debesh Chattopadhyay, Project Consultant, says, "The systems need to be reliable & easy to use, whilst being loud & clear." The Amphitheatre was the first studio, which was designed using OHM's TRS 212 Cabinets. Our newly launched KX-3 wide dispersion cabinets complement

the system acting as lip fills. They were accompanied by the mighty TRS subwoofers, while the TRS monitors took care of the stage actors' monitoring requirements.

The Black Box was a more challenging

prospect, as per OHM's team. The brief given to them mentioned ad-hoc stage placement anywhere across the room. This added the challenge of feedback as the

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Amphi-theatre deployed with OHM's TRS 212 cabinets, TRS subwoofers and TRS monitors

GIANT SCULPTURAL PROJECTION MAPPING TELLS STORY OF ADIYOGI

One hundred and twelve feet tall, the statue of Adiyogi rises majestically above the Isha Yoga Center in the beautiful foothills at Coimbatore, Tamil Nadu-India. And every weekend, the world-record bust comes to life in a stunning projection-mapped interpretation of the story of the Adiyogi's divine appearance. Dataton WATCHOUT mapping software, WATCHMAX



The team at Axis Three Dee Studios came up with creative solutions to overcome the challenge that the satin finish and highly uneven topography posed

media servers, surround sound and Epson projectors help deliver the awe-inspiring production by *Axis Three Dee Studios Pvt. Ltd.*

The show, produced and played back with the Dataton WATCHOUT system is a unique (14 minutes, 10 seconds) projection-mapped chronicle.

The center appointed Axis Three Dee Studios Pvt. Ltd to execute the entire project from start to finish, including the complete production of the visuals. The undertaking resulted in several firsts – and presented a number of challenges.

Black surface called for creative solution

The Adiyogi statue is built of steel and painted black. The satin finish and highly uneven topography called for some creative thinking by the team at Axis Three Dee Studios.

“Projection mappings are usually attempted on lighter coloured surfaces that evenly reflect light, unlike in this case,

black, which greatly absorbed it,” says **Avijit Samajdar**, CEO, Axis Three Dee Studios Pvt Ltd. “What’s more, the sheen on the surface meant that the proper colours did not appear and the team devised a unique colour palette (Real Time Colour Cancellation process) to counter the interference hues from the shiny surface. Thus, the final amalgam of colours using this process, came out vivid and rich during projection, with unwanted reflective hues cancelled out in real time.”

Challenges of mapping a world-record statue

Another challenge was the sheer scale of the project. The entire surface area to be projected upon was over 8000ft. To achieve full image coverage with crisp and vibrant imagery, 24 hi-tech 15,000 lumens laser projectors from Epson, running under Dataton WATCHOUT, were used in a unique stacking

configuration.

“Due to certain inherent constraints to the locations for the permanent setup of the two projection towers at the site, the projectors were arranged in four stacked sets by the technical team, to ensure maximum optimisation of lumens and angle of incidence of the projected light,” explains Avijit Samajdar.

Ashok Sharma, Dataton, elaborates: “Naturally, the center did not want to have a projection tower built in front of

the Adiyogi statue as this could obstruct viewing and visitors. The solution was to build two towers, of limited height, at 45 degree angles. The left tower covers the entire left side of statue and right tower covers the whole right side of the statue.

“The mapped show was programmed in WATCHOUT production software by Manesh Kadam and we then deployed two WATCHMAX media servers to ensure flawless mapping of the content on the surface of the Adiyogi from both left and right sides. The Dataton WATCHMAX servers are also integrated with the 5.1 channel sound of the show with **Sirvinder Singh** from Purple Vector responsible for overall AV system integration.”

The WATCHOUT system was chosen due to its strong track-record in the industry as a reliable and versatile tool for cutting-edge mapping applications. As the first performance of the show was in front of a VIP audience, headed by the Honorable President of India, Ram Nath Kovind, there was absolutely no room for anything less than perfection.

Ashok Sharma concludes: “The show creators appreciated the easy-to-navigate interface in WATCHOUT and how smoothly changes could be implemented – even

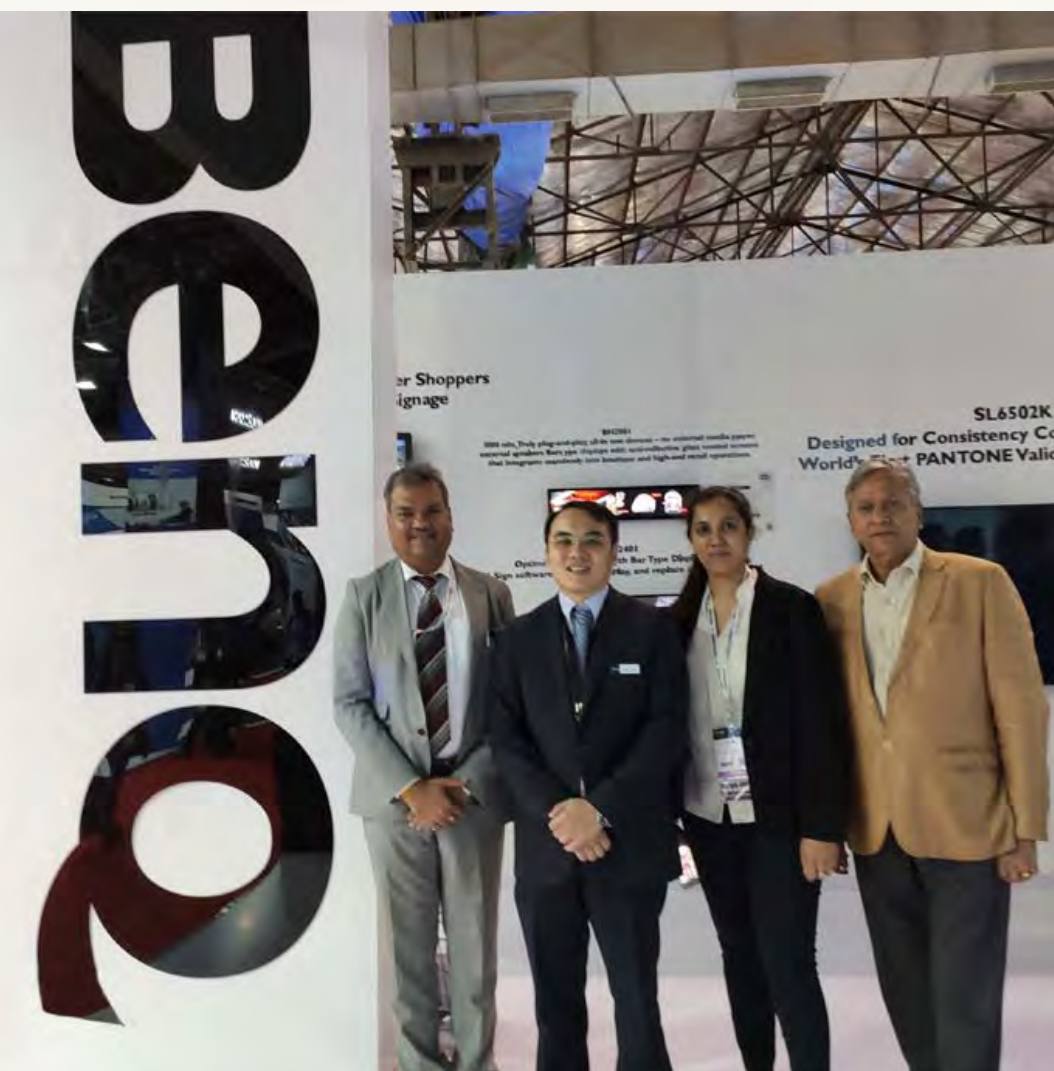


To achieve full image coverage with crisp and vibrant imagery, 24 hi-tech 15,000 lumens laser projectors from Epson, running under Dataton WATCHOUT

on the day of the launch. On the big day, the mapped content played back flawlessly on the surface of the Adiyogi, creating a truly magnificent experience for over 350,000 spectators.”

BENQ PRODUCT DESIGN RESPONDS TO MARKET

What stands out about BenQ, anchor exhibitors at AV-ICNx expo, is that product design is motivated in response to market needs. Analysing the market needs and fulfilling that need, is what has ensured that BenQ products are successful. Market integrity in product design and their 'always can be better' attitude has today made BenQ one of the leading brands in the AV Industry. Their booth at the recently concluded Infocomm expo in Mumbai attracted a lot of buzz and attention and AV-ICNx caught up with Jeffery Liang- President of BenQ APAC Region and Rajeev Singh- Managing Director, BenQ India, to learn more about product innovation and their drive to keep giving the market what it needs.



From L to R: Rajeev Singh, Jeffery Liang, Smita Rai and Anil Chopra

AV-ICNx: India is a different, special and tough market, which equates quality at the best price level. Did BenQ devise any special strategy to succeed in the Indian market?

RS: About almost a decade ago, maybe 2010-2011, India saw the use of projectors in education but it was still primarily used for higher education, wherein professors would use projectors to show PPTs or video presentations. The big opportunity however, was the school segment in India as no one was using projectors in the school segment. This was because school teachers did not make PPTs; they had a set curriculum and came prepared with lessons which they taught students using a textbook. Since, India has always been a powerhouse in software, we targeted all the education software companies in India. A lot of the companies were focusing on creating software in multimedia format for school curriculums to facilitate interactive and multimedia teaching. They needed a device to deliver the content in the classroom and we needed content to be used with the projectors. As the mode of learning for higher education and schools was completely different, they needed a different kind of content. We were the first ones to collaborate with these software companies and sell a complete solution, which included having their software, our projectors, interactive white board and a small PC because all

this content had to be on some computing device. We started out this way and gradually developed a special projector for the Indian classroom environment. Since, even the private schools weren't air- conditioned, temperatures could go up to as high as 50 degrees, plus there was also a lot of dust and electricity could get very unstable with frequent outages. Keeping all of these factors in mind, we tailor made a projector for India which was a short throw projector and was dust resistant. There was also a special provision for the lamp to not get damaged if there was a sudden electricity outage. Our projector along with the software was a complete solution and created a reliable and affordable experience in the classroom. This made us No.1 in the projector business in the Indian private education sector; our share is as high as 65% even now. Out of three classrooms in a school, at least two use BenQ projectors. This is a very unique to India; no other country in the world boasts of such a model.

AV-ICNx: BenQ is a very old name in the Indian market and seen as a serious and professional brand; are you satisfied with the projector sales in India?

JL: I always say this, there's no best, it can always be better. Nevertheless, Rajeev Singh is doing a fantastic job for us. Even though we are selling projectors, which are much more expensive than so many other brands, we are still number one in the projector business, because of the brand reputation that BenQ has. Because of Rajeev and his leadership, in terms of projectors,

DuoBoard Corporate Interactive Flat Panel for Extended Collaborations

The new generation of 4K DuoBoard corporate interactive flat panel (CP6501K/CP8601K) facilitates efficient multitasking by enabling users to open two applications simultaneously, while Duo OS achieves cross-platform compatibility between Android, iOS, macOS, and Windows OS, for more collaboration. The Duo Boards function combines two panels side by side, to double the collaboration space and develop borderless ideas under the powerful whiteboarding app EZWrite. The 65" and 86" DuoBoard CP6501K/CP8601K also provides seamless video conferences with the embedded FHD camera and array mic, as well as intuitive display interactivity by incorporating the advanced P-cap (Projected Capacitive) touch technology. The P-cap touch enables accurate, precise touch responses on the screen for realistic hand-writing, also features with InstaShare app for ease of wireless mirroring, open-platform software compatibility, smart eye-care solution, and hassle-free maintenance.



Smart Projectors for Instant Wireless Presentation

The newly launched Smart Projectors feature a powerful built-in operating system with useful business apps, enabling wireless mirroring across multiple platforms, video conferencing, collaboration, and direct reading of files from USB drives to maximize meeting efficiency in the BYOD trend. Besides the standard throw models EH600, EW600 and EX600 with resolutions of Full HD, WXGA to XGA respectively, the short throw models EX800ST and EW800ST even incorporate hassle-free management apps to manage across BenQ smart projectors and interactive flat panels in one company, such as Account Management System (AMS), Device Management Solution (DMS), and X-Sign Broadcast to deliver instant messages into the projection screens.



BenQ India is definitely a role model for the entire global market.

AV-ICNx: Is the entire R&D and Manufacturing done in Taiwan? Or is some of it done in India too?

JL: So far, both R&D and manufacturing is still done in Taiwan, because there are certain economies of scale that need to be considered. The projector market is actually very complicated. You need a good place and stable labour skills and so far no brand has been able to manufacture projectors in India. The total volume of projectors is about 7.5 million a year worldwide, with India accounting only about 350K and that's not enough to set a manufacturing unit in India and get a benefit out of it.

RS: And off this 350K, majority are data projectors and for data projectors there is no custom duty anyways, so if you manufacture anything locally, there is no advantage.

AV-ICNx: What are the new trends in display that we can look forward to?

RS: Today, the biggest trend in display is of course Interactive display. There are so many other things coming up with a whole lot of features as compared to normal interactive displays. Displays are becoming very segmented. There are different set of features for every use. Be it classroom, conference room or huddle room. The displays fulfil very specific set of uses and features. All of this results into a very immersive meeting environment since otherwise the retention of information during a meeting or a lecture is a big problem. The problem is that the retention rate or the take home information, is very low by the end of a meeting. People are constantly distracted by their phones, or their mind is elsewhere and this is where these new-age interactive displays play an important role of immersing and connecting with the audience so that their take home is much more. Also, all the data that is displayed can be directly sent to them through Wi-Fi or it can be emailed to them. There's no need to take a picture or take notes. Every screen can be sent to them.

AV-ICNx: So with these interactive displays and collaborative displays, are all the connected people getting data of the entire thing in auto mode?

RS: They can, but only if they have permissions. All these devices have enterprise level security features in them. It's not that anybody can connect to it, only if they have access then they can connect to it, otherwise you can either send it to them whenever you want or give them the access to connect to it. Also, for each person the level of access can be pre-defined with the help of an NFC card. So all the devices are very intelligent and most importantly they meet up with all the corporate security requirements.

AV-ICNx: So which is the next growth sector you are looking at in terms of displays and projectors?

RS: Our primary focus is Interactive Flat Panels as our next growth segment because as I mentioned earlier, in the beginning we sold only a part of the whole solution which was the projector; everything else was from other manufacturer, but, now, we have our own Interactive flat panel which contains everything in a single device except the software. So the hardware together with the software is a full solution. Therefore, we are focusing on the interactive panel in the education and corporate sector as well.

The corporate sector comes from a non-interactive usage background, but in this new digital era, the need for collaborative working has arisen in the conference room, for which you need interactive displays; the passive displays will not do the job. We have launched a new series for the corporate segment called Duo Board. It is AV over IP ready. It has two screens that you can use together and there is dual operating system. It is primarily for collaborative working and is very feature rich.

In terms of projectors, we have launched a smart projector. Up until now, all the projectors including our laser projectors were just pure hardware devices. There was no operating system or

computing inside. Now we have come out with a smart projector for the corporate sector wherein you have an in-built android, which eliminates the need of connecting a laptop. All you need is a pen drive or a hard drive that you can directly connect to the projector. Since it is android, it has many apps that you might need in office for video conferencing needs.



One can also either connect a keyboard and a mouse, wirelessly or connect it to the projector itself. This again, is a very different way of using projectors in the corporate environment as the projector has interactivity and you can do so many things around it.

JL: So as Rajeev mentioned, in the past we were only a part of the total solution, but when we started IP, the device itself is a total solution. Because of our R&D, sales and marketing team, we are getting stronger and stronger in both hardware and software. Our smart projector are not just passive displays, they have intelligence inside.

RS: We have also launched a 7000 lumens laser projector, which comes with a passive 3D support. 3D support is an add-on feature; otherwise it's a fantastic high brightness projector by

World's First Pantone Validated Digital Signage

Featuring 4K2K UHD clarity, Smart Signage Series 65" SL6502K, the world's first Pantone validated digital signage, assuring on-screen color fidelity and matched interoperability with Pantone-qualified color production devices. SL6502K delivers professional color - performance to fulfill the absolute precision and consistency from design to in-store deployment and broadcast via digital signage for retailers, fashion trendsetters, product brands and design studios who trust the Pantone system to deliver accurate color production. The greater flexibility in horizontal or vertical view makes it perfect for retailing space or meeting room display. With a built-in OS and pre-loaded X-Sign software, SL6502K facilitates effortless content creation and management including scheduling distribution or monitoring display performance in real time.

itself. 7000 lumens are good enough for a typical Indian sized theatre.

AV-ICNx: Will LED screens soon replace all the film projectors?

RS: Laser projectors will replace all the conventional projectors. LED cinema screens are very expensive. It is not going to change anything.

AV-ICNx: Has BenQ tied up with UFO or any other chain?

RS: No we have not. But, we will be tying up with one of the chains very soon.

AV-ICNx: Who is your main competitor for the smart projector?

JL: There is no one. We are the first ones to launch this kind of a projector.

AV-ICNx: What is the biggest challenge here?

JL: This is a new product, we are the pioneers and the challenge here is to educate the end-users and the public in general.

AV-ICNx: Is this projector competing with the smart displays?

RS: Yes, it is, but it's more of a solution than a competition. For every price point or every feature there is a customer. And, the choices available need not replace each other; they can also complement each other.

AV-ICNx: How big is the hospitality sector for you?

RS: We have signages for the hospitality sector; however, for us our major focus is interactivity. Every brand has its own focus. Currently we have 30% market share of the Interactive flat panel market.

In displays, we are focusing more on unique solutions, like the one we have launched here. We have launched a new display, which is the world's first Pantone certified display. This is the only display in the world that is certified by Pantone. Many corporates have this requirement because their logo has a certain Pantone shade, when you want to display the logo, the display should show the true colour, and this is the only display that ensures that. Wherever you have a colour critical application, is where you need this display.

BOSE PROFESSIONAL EXHIBITS NEW DESIGNMAX LOUDSPEAKERS

Bose Professional showcased DesignMax loudspeakers, a new range of loudspeakers that offer the flexibility and style to deliver outstanding audio and aesthetics for commercial spaces. With ten loudspeakers and two subwoofers to choose

SPL compression-driver loudspeakers. All models deliver instantly impressive sound, with no EQ or DSP required. Enabling Bose EQ voicings on select Bose digital sound processors and smart amplifiers provides even better sound. SmartBass

Elegant form factor surface enclosures, sleek, minimum-bezel grilles, removable logos, and attractive styling allow DesignMax loudspeakers to blend with any décor. Surface-mounted DesignMax loudspeakers feature hidden U-brackets, and the unique design holds the loudspeaker closer to the wall, providing a much cleaner appearance.

For installers, unique QuickHold mounting mechanisms on each DesignMax loudspeaker make the installation job easier, reduce strain and hassle, and save substantial time in the field. For surface-mounted models, the loudspeaker snaps in to the QuickHold U-bracket. Installers can adjust the pitch and lock the QuickHold levers to set the loudspeaker in place in seconds without using tools. For ceiling-mounted models, installers can simply push the loudspeaker into the ceiling opening. QuickHold mounting arms spring into place, holding the loudspeaker as the installer finishes the job.



Bose Professional DesignMax loudspeakers, shown in white finish (also available in black finish)

from – including ceiling-mounted, surface-mounted, and outdoor-rated options – it's easy to create tailored DesignMax systems for any application, large or small.

DesignMax loudspeakers range from 2-inch low-profile models to 8-inch high-

processing can also be enabled to deliver enhanced sound at any listening level. On select models, the Dispersion Alignment system provides wide and consistent off-axis response – so everyone hears premium sound.

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ATLONA APPOINTS ALPHATEC AUDIO VIDEO AS ITS DISTRIBUTION PARTNER

Atlona strengthened its brand visibility and product availability throughout India with the appointment of *Alphatec Audio Video Pvt Ltd* as its premier in-country commercial AV distribution partner, effective immediately. Alphatec Audio Video will focus on expanding Atlona's presence throughout India's community of dealers, systems integrators, application engineers and rental companies. Alphatec will proactively launch and manage customer-facing initiatives to breed familiarity with Atlona's vast product range.

The company has also established a broad distributor and dealer network that reaches every corner of India, offering end-to-end support throughout the de-

sign, integration and post-launch process.

"Alphatec Audio Video has the infrastructure to channel the brand across the pan-India region and substantially increase sales and brand recognition," said **Devasis Barkataki**, Managing Director, Alphatec Audio Video Pvt Ltd. "The Indian market itself is enormous and challenging to penetrate, which requires a partner that can offer rigorous and dedicated marketing strategies to success. We will create a larger space for Atlona in the market to ensure it evolves into one of the most sought-after commercial AV brands in India."

Barkataki adds that Alphatec Audio Video will partner with Atlona to pro-

vide joint training and education classes for Atlona products in major cities, and offer its own educational initiatives in smaller towns and cities. This includes a mix of strategic road shows, participation in regional exhibitions, and certification courses.

"India is a nation of great business opportunity, yet requires strategic partners who understand how unique the market is as a whole," said **Sanket Sawant**, Director of Business Development, SAARC, Middle East and Southeast Asia.

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EXTRON SHIPS THE DMP 128 FLEXPLUS FLEXIBLE DSP FOR DANTE SYSTEMS

Extron announced the immediate availability of the DMP 128 FlexPlus series of compact Dante Digital Matrix Processors, featuring twelve FlexInput channels with full DSP, including AEC, and Dante connectivity, in only a half rack space. With an extensive mix matrix, a USB audio interface, and analog compatibility, the DMP 128 FlexPlus provides the ability to easily connect and route multiple types of source signals to accommodate diverse analog and digital system requirements. For collaboration applications, the V model includes up to eight VoIP lines. Featuring an ACP bus for audio control panels, an expansion port for bidirectional digital audio connection with a DTP CrossPoint or another DMP, eight audio file players, and configurable macros, the DMP 128 FlexPlus can be used anywhere from a collaboration space, to a large conference room.



DMP 128 FlexPlus series

The Dante-enabled DMP 128 FlexPlus series is ideal for applications that utilize Dante ceiling microphone arrays and other Dante enabled devices. With network connectivity for up to 48 Dante sources and 24 Dante destinations, the DMP 128 FlexPlus, featuring a built in two port Gigabit switch, enables the creation of simplified, cost effective audio systems.

"System designers want more from DSP processors that can route signals to and from Dante devices," says **Casey Hall**,

Vice President of Sales and Marketing at Extron. "The DMP 128 FlexPlus addresses these needs with full-rack features, including AEC and Dante, in a half rack space."

All twelve main DSP channels of the DMP 128 FlexPlus offer FlexInput source selection to route any Dante input, expansion input, or one of the four mic/line inputs, to a main DSP channel. This enables the DMP 128 FlexPlus to process audio from any source with the full range of DSP capabilities, including AEC.

QSC CX-Q SERIES FOUR-CHANNEL NETWORK AMPLIFIERS NOW SHIPPING WORLDWIDE

QSC announced the global availability of the **CX-Q Series** network power amplifiers in four-channel models. These amplifiers combine the QSC legacy of high-fiers, CX-Q Series delivers drag-and-drop design integration, advanced telemetry and monitoring through Q-SYS Reflect Enterprise

Manager, and an elevated audio experience when used with QSC loudspeakers.

"The addition of CX-Q Series amplifiers to a Q-SYS design is an ideal illustration of a true, native ecosystem approach to system design," says **Sanjay Kulkarni**, Senior Director, Amplifier Product Development,

QSC. "This native approach can greatly reduce installation and setup time while maximizing performance across the entire system, allowing integrators to deliver the most optimal experience for the end customer."

The CX-Q Series network amplifiers utilize a highly efficient, Class-D hybrid powertrain design built upon the dependable PL380 PowerLight amplifier platform, which has been installed in mission-critical installations around the world. They also feature two QSC amplifier innovations – FlexAmp and FAST (Flexible Amplifier Summing Technology) that combine to offer far more fluid power distribution options in a single amplifier.

CX-Q Series allows the integrator to choose between "Q" models, with network inputs as well as routable mic/line audio inputs that provide additional on-ramps to the Q-SYS Ecosystem, or "Qn" models, that feature only network audio inputs to reduce system cost when additional inputs are unnecessary.



QSC CX-Q Series Four-Channel Network Amplifiers



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INTEGRATION AND DISPLAY DOMINATES INFOCOMM INDIA 2019

The recently concluded 7th edition of Infocomm India was a huge success, registering a 17 percent increase in visitors over last year's show as per the press release by Infocomm India. The release further stated that the total numbers of registered visitors were 11,532 out of which 2512 attended the Summit, which comprised 74 knowledge-sharing sessions running the gamut from high-level conferences to industry seminars and technical discussions. Fifty percent of Infocomm India's diverse spectrum of visitors hailed from a wide spectrum of end-user verticals, while the rest comprised AV and IT channel representatives. About 86 new-to-India products were unveiled at the show. Sixty amongst the over 200 exhibiting companies were first-time Infocomm India exhibitors. They hailed from over 20 countries. Reflecting India's nation-wide push toward digital technologies, numerous government representatives attended the exhibition with huge projects in pocket, to hunt for the latest in experiential communications. Exhibitors were delighted to get the opportunity to



Nataraju Upputuri- Director, Aurora Multimedia India, with visitors at their booth at Infocomm India

demonstrate their solutions to potential new clients.

Tech Nuggets

- **Screen Beam** demonstrated its newest 4K Multimedia Network Wireless display and collaboration solution, **Screen-beam1100**, was also the winner of Best of show 2019 by AV Technology from USA during Infocomm India Expo.
- **Genelec**, global leader in professional audio monitoring unveiled a unique open IP networking technology platform aimed specifically at the installation market. The smart IP platform enables flexible system integration, supervision, management and monitoring over IP.
- **Kramer** was once again the Platinum partner of Infocomm India Expo. They exhibited first-of-its-kind, 34-PORT, 8K-Ready Multi-Format Modular Matrix Switcher for Av Signals. Kramer's **VS-34FD** supports HDMI, HDBaseT, DGM, fiber optic, DVI, VGA HD-SDI as well as analog and digital audio. The VS-34FD chassis is backward compatible with all existing cards, and futureproofs AV installations with an 8K-ready chassis for upcoming 8K cards.
- Leading control automation service provider, **Aurora Multimedia** showcased many industry firsts including the Newly Launched **AirShare AS-100**, which is an ensemble of four-each wired, wireless, and built-in mini control systems, besides several other features that are aimed at enabling auto functionality and minimize human intervention.
- **Christie**, a leader in creating and delivering the world's best visual and audio experiences, showcased its new Christie **D4K40-RGB 3DLP** projector that produces greater than 90 percent of the rec. 2020 colour space for rich, vibrant and true-to-life visuals – all built into a compact projector weighing less than



Sarah Joyce, Chief Global Officer, AVIXA

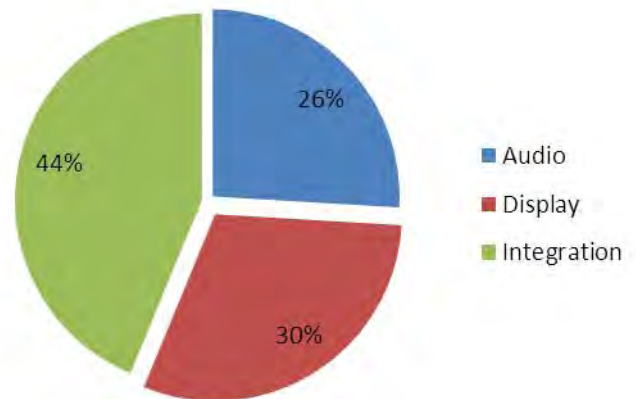
half of its closest competitor. (Check out the interview on page no. 32)

- **Bose Professional** showcased **DesignMax loudspeakers**, a new range of loudspeakers that offer the flexibility and style to deliver outstanding audio and aesthetics for commercial spaces. With ten loudspeakers and two subwoofers to choose from – including ceiling-mounted, surface-mounted, and outdoor-rated options – it's easy to create tailored DesignMax systems for any application, large or small.
- **Absen's** new **Aries series** (featuring the 1.5mm pixel pitch AX1.5) is specially designed to meet the growing demand for sub-2mm fine pitch LED in rental staging. Supporting HDR10, the AX 1.5mm allows for a much broader range of colours, while being road rugged thanks to its corner edge protection.
- **Maxell** introduced its new laser projector **MP-WU5603** that offers two digital-connectivity, including HDMIx2, HDBaseT. Professional features include vertical and horizontal lens shift, picture shift, 360-degree installation and geometric correction.
- **Samsung** displayed its **Onyx Cinema LED** screen that is capable of true black colors, offering the audience a detail rich and vivid cinema experience. The screen can fit virtually any venue configuration while also delivering unparalleled picture quality, technical performance and reliability beyond that of traditional projector-based operations. It combines 4K resolution, HDR picture quality and peak

brightness level of 88fL – nearly six times greater than standard projectors.

- Aiming to unleash a team's creativity and upturn the way employees work, **Newline** showcased its **Z55** adapts to any workspace and transforms it into a smart meeting room. The embedded motion, light and temperature sensors allow office-goers to adjust room lights, control temperature, and manage touch screen power, all automatically, all from their smart devices.
- **beyerdynamic** displayed its wireless Bluetooth speakerphone **PHONUM** - The innovative conferencing solution can turn any space into a meeting room and, on account of its 360° in-and-out technology, boasts outstanding speech intelligibility and excellent sound reproduction. PHONUM can adjust to the specific meeting situation at hand by dynamically focusing the microphones of the triple-capsule array towards the speaker using beamforming or by capturing and reproducing the entire room.
- **Logic Displays** launched a brand new product- **Estilo** which is promised to be an intelligent LED that combines

Percentage of Product Segment



the best of interactivity and efficiency to offer a much more live and involving experiences to the customers. This display solution is a blend of powerful vision and intelligence is the future of workspaces and a must have solution for improved productivity.

- **NovaStar** introduced its all new video controller- the **NovaPro UHD Jr.** with unrivaled processing ability and excellent loading capacity, it brings you an amazing viewing experience that is perfect for high-end rentals, fine pixel pitch solutions and anything else requiring a massive amount of power.
- **QSC** introduced **Q-SYSTEM NV Series** (NV-32-H) - native video distribution within the Q-SYS Ecosystem. It is a native, multi-stream, software-defined HDMI encoder/decoder that enables network-based video distribution, optimized specifically for meeting rooms.
- **BenQ**, the global leading display solution provider introduced the system-embedded Smart Projectors for business, **DuoBoard** corporate interactive flat panel and the world's first Pantone validated Digital Signage **SL6502K**. The newly launched **Smart Projectors** feature a powerful built-in operating system with useful business apps, enabling wireless mirroring across multiple platforms, video conferencing, collaboration, and direct reading of files from USB drives to maximize meeting efficiency in the BYOD trend. The new generation of 4K DuoBoard corporate interactive flat panel facilitates efficient multitasking by enabling users to open two applications simultaneously, while Duo OS achieves



Planar's booth at Infocomm India



Visitors experiencing Christie's APEX Series 1.2mm at their booth at Infocomm India

cross-platform compatibility between Android, iOS, macOS, and Windows OS, for more collaboration. (Check out the interview on page no. 10)

Seminars and other attractions:

Apart from the exhibitors, other noteworthy display and attraction were Bart

Kresa's Sviatovid human head sculpture with a 270 degree 3D Projection mapping and the 74 knowledge-sharing sessions that reportedly had more than 2500 attendees.

The seminars included AV Leaders Forum, Industry Forums, Technology forums, Avixa Seminars and panel discussions, on

topics like reinventing the New Media for Retail and Outdoor, Using emerging technologies for transforming e-governance (psus, government sector), Homeland Security And Defense, etc amongst other topics.

SII & AVIXA joint platform for "celebration of AV excellence" recognized outstanding work of systems design and integration. This was the third edition of the awards and first one with AVIXA as a partner. The SIIA was an amalgamation of individual awards from AVIXA and Industry awards from SIIA.

Richard Tan, the Executive Director of event organizer InfoCommAsia, said, "In tandem with the growth of India as one of the most exciting emerging economies in the world, Infocomm India has soared in seven years. We are now well-known in India as the platform of choice amongst exhibitors who want to tap into the promising Indian market and amongst business and organizations which want to plug into the latest experiential technologies from the best companies in the world."

AURORA MULTIMEDIA LAUNCHES....

Continued from page 03

Studio software get loaded in to the built-in web server, allowing virtually any device with a web browser to display the GUI and control the system. The RXC and QXC IP control systems have a full complement of LAN, RS-232, relay, I/O, and IR ports for controlling external devices. An IR receiver enables the internal IR learner – no extra hardware required.

SDVoE Transceiver Box and Wall Plates Now with Preview

It is the only encrypted 4K60 4:4:4 10Gbps AV over IP transceiver box and

based on content or to assure the content is being streamed. Third party control interfaces can also display the preview of the streaming content on a variety of touch screen devices.

4K60 8 Port HDMI PoE Splitter:

The DXE-218 is the first ever 8 port 4K60 4:4:4 HDMI PoE Splitter with downscaling per individual output. The unit delivers enhanced capabilities such as individual CEC control, EDID management, Hot Plug Detection, and EDID reporting per output. This is all done through the LAN port for full control and statistics of all ports.

In addition, the downscaling per port allows 1080p screens to be utilized on the same splitter with a 4K60 source. To round out the solution, the DXE-218 has 2

input ports to select from to change content remotely. The PoE simplifies cabling by eliminating all external power supplies.



HT Series HDBaseT 4K60

Depending on the network switch, the DXE-218 can even be power controlled remotely.

HT Series HDBaseT 4K60, 4:4:4:

The HDBaseT comes with the ability to work at 4K60 4:4:4 with a single unshielded CAT 5e or better cable and the world's first Dante option for 2 or 8 channel Dante.

Three new HDBaseT 2.0 products comprised of the HTW-2 two gang transmitter Decora wall plate, HTE- TX2 transmitter box unit, and the HTE-RX2 receiver box unit will change the way HDBaseT is utilized.



4K60 8 Port HDMI PoE Splitter

wall plates with preview capabilities. Using the Aurora IPBaseT Manager Utility, a user can preview the streaming content as motion bitmap images on the routing page. This allows easy viewing in a tile and larger preview to make routing choices

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“APART FROM EDUCATION AND GIVING PEOPLE ACCESS TO PROFESSIONAL TRAINING, THE AIM IS ALSO TO BRING THE COMMUNITY TOGETHER AND THAT’S A REALLY IMPORTANT ASPECT IN A GROWING INDUSTRY”

- WENDY GRIFFITHS, VICE PRESIDENT GLOBAL DEVELOPMENT

*Mumbai’s AV Consultants and Integrators congregated at CEDIA’s Training & Tech Summit Event held from 7th to 9th August at the MCA Club in Bandra, Mumbai. AV-ICNx caught up with CEDIA members present at the event, studiously attending all tactical sessions. **Smita Rai** caught up with **Wendy Griffiths** - Vice President Global Development for CEDIA, at the sidelines of the event to find out more about CEDIA’s activities in India*



Smita Rai with Wendy Griffith at Cedia’s Training & Tech Summit Event held in Mumbai

What is CEDIA’s Primary Focus at this moment?

Establishing CEDIA as an entity outside of the two core countries of the UK and the US is the agenda. We have four focus countries for development within this strategy at the moment, which is Australia, India, Canada and Mexico.

What do you think about India as a market?

It’s amazing! It seems to be really buoyant. One of the things that amaze me is what I learn from the peer group discussions that take place. Everyone here has an altruistic wish to grow the industry and grow more efficiently. They are quite happy to work together with competitors to make that happen which is a great thing for me to see.

How many members do you have in India?

50, as of March this year. We always dealt with India out of the UK office and from end of March this year we had **Roopesh Shah** come on board, so now we have a dedicated resource in India. I think he’s going to make a huge difference. We’ve certainly seen a massive increase this year with sponsor-

ship and with attendance for this event but also we've had six member companies renewing off the back of this event.

What is the schedule for the ongoing Tech Summit?

We started the summit this week on Tuesday, 6th August, with what we call as the CEDIA Accredited Presenter training. This was a training course for eight people who we have identified as subject matter experts. We took them through presentation skills training so they could become senior presenters for us and actually offer education for us on a regular basis. Up to now, we've been very dependent on international presenters and subject matter experts coming over, which is fine. We want to continue to do that, but we also want to have local subject matter experts who can actually offer education for us on a regular basis. We want to get as many people trained as possible and get people through certification exams and get the core curriculum out to the Indian market.

Yesterday, Wednesday, 7th August we held our Manufacturer Product Training Tech Summit. So that was an event where we had an attendance of probably about 110 to 120 at the peak of the day. We had 10 sponsors and they did manufacturer product training, CEDIA had all the sponsors talk about their latest products.

I did a presentation on Working with Design Professionals like architects and interior designers. We had a gentleman from the IIID come over to understand more about what CEDIA does and how we can work with the IIID to raise awareness amongst Interior designers. We wrapped up the day with a networking event for everyone to get together.

Today (Thursday, 8th August) we are following up with the core curriculum. In the morning we had Project Management training for high performance Cinema Projects and in the afternoon we had Advanced Lighting Design training for Cinema Designers. In another room, we had the network training going on. We

had **Peter Aylett** who is our international presenter doing the Project Management course and the lighting course and **Rajeev Jain** from *Play Technologies* who is our local presenter doing the network training for us. Tomorrow, we'll continue with more advanced networking training and an acoustics workshop.

How many events does CEDIA do in India in a year and how long have you been having these events here in India?

At the moment, we do our own standalone events, generally two in a year, but we're actually looking at a format for next year wherein we can do one

now comes in.

This is the first time that we have done a four-day event, however. Some people have been here for four days, which is amazing. To take time out their business to do be here is phenomenal. Also, this year we found that it's been very regionally inclusive. We've had a lot of people from Bangalore and Delhi too; basically from all over which is again great.

Your future plans for India?

There are a couple of focuses for us in India. One (and it started off pretty much yesterday) is the Working Professionals Designs course. We also want to really start developing what we call our SEO high CEDIA Outreach Instructor programme. We call it CEP over here - Continued Education Programme.

The programme enables members to develop relationships with interior designers and architects and gives CEDIA members a platform to get in front of these very valuable professionals and talk to them about what they can do and how they can enhance their client's lifestyles. The programme helps raise awareness of CEDIA, its members, and the home technology industry to design professionals. That's a big part of what we want to do.

The other part is we really want to continue with the development of education and professionalism in the market. We push with certification exams and we have certification for technical design and networking. The focus for us going forward is getting people up to certified levels in those disciplines.

The other discussions we are having is on how we can educate people at that college and university levels and even maybe the school level about the opportunities available to have a career in this industry. We want to try to bring new people into the industry who want to build a career in this area.

“There are a couple of focuses for us in India. One is the Working Professionals Designs course. We also want to really start developing what we call our SEO high CEDIA Outreach Instructor programme. We call it CEP over here - Continued Education Programme.”

big event and then a number of smaller satellite events to support that. We want to concentrate our efforts on one bigger event a year to get the industry together. It was commented last night that this is about the only time that the industry gets together and this is one of the core roles of CEDIA. Apart from education and giving people access to professional training, it's also about bringing the community together and that's a really important aspect in a growing industry.

We have been doing these events in India for five years now and it's been continuing to evolve. We have been managing this very much out of the UK. So we'd come to India and do the events and then unfortunately there was no continuity in between which is where Roopesh

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Auditorium deployed with TRS 212 FOH system and a pair of OHM's BR series wide angled speakers

OHM AT INDIA'S GREATEST NEW LANDMARK – DIGHA CONVENTION CENTRE

Digha is west Bengal's most popular sea resort. It is located 187 km south west of Kolkata. Chief Minister Mamta Banerjee had earlier laid down the blueprint for the creation of a unique convention centre to promote business and tourism in New Digha. The Digha Convention Centre is now ready and a robust OHM system waits to welcome visitors.

The Auditorium

The auditorium design was challenging because of the sheer size, mounting restrictions and quality expectations. After ample deliberation, OHM chose a TRS 212 FOH system with a TRS 112-HN downfill, with lip-fills for the front rows and filters across the audience areas. The upper balcony and under balcony had a pair of OHM's BR series wide angled speakers. TRS 115's covered on the stage

monitoring while KS-3's took care of the reference and control rooms and ceiling speakers were installed in the green



Sushil John, Executive Director, APAC, OHM

rooms. The systems were tuned on OHM's Spyder software and Cleo MK3 DSP units to achieve a perfect blend of power &

performance.

"The system is acoustically brilliant, easy to use and ready to withstand years of use," says, **Sushil John**, Executive Director, APAC, OHM.

The Exhibition Centre

Digha Convention Centre has a dedicated exhibition space for promotion of businesses and events in the area. The exhibition space has been built upto international standards and will host multiple meets & events in the sector of tourism, commerce, and trade among others. The area is engulfed by OHM's Boutique Speakers, which can be used as BGM or Announcement Systems.

Kamal Bhunia, Sales executives, East India, OHM, says, "OHM has designed a distributed system to ensure superior sonic performance for BGM & announcement systems."

HOME CINEMA

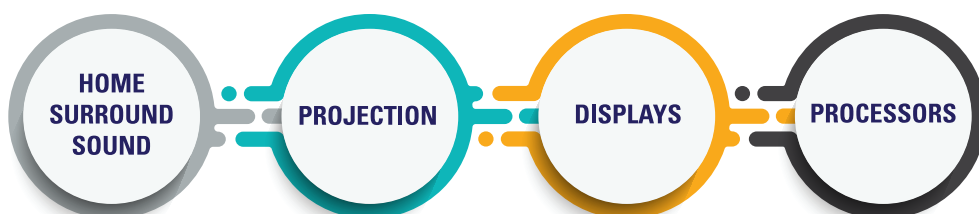
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EXPO 2020

THE FUTURE IS HERE

LET YOUR BRAND BE IN THE FOREFRONT OF HOME TECH PROFESSIONALS
ATTENDING THE SHOW TO SOURCE THE LATEST IN HOME TECH INNOVATION

Over 20 years, PALM has been the sourcing expo for speakers, with the world's leading audio brands present in strength. The world's largest bank of educated engineers, leading AV consultants and home tech professionals delivering home cinema consultancy and integration, having influence over purchasing decisions is the audience at AV-ICNx 2020

AV-ICNx OFFERS EXHIBITORS AN OPPORTUNITY TO HIGHLIGHT A RANGE OF THE WORLD'S FINEST TECHNOLOGIES FOR HIGH-END HOME CINEMA. THIS SEGMENT FOCUSES ON HIGH-END



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Seminar Hall & Conference Room at Digha Convention Centre

Seminar Halls & Conference Rooms

The Seminar Halls & Conference Room have a dedicated PA & conference systems. They are designed using the latest ceiling array microphone technology, with OHM's KS & BAT series speakers reproducing crystal clear output across the areas. These areas will host board meetings, smaller conferences & workshops, professional gatherings and more.

"Sound Design in conference rooms and seminar halls is a key aspect of the place's user experience. We have kept ease of the use and minimum interference at the top of our design priority list for an unobtrusive and enhancing sound design," said

Anindya Bhattacharya, Senior RSM, East India, OHM.

The 5-Star Hotel

Since the beginning, it was planned to have a lavish hotel within the convention centre to further enhance the experience of professional travelers at the venue. The hotel, will soon be taken over by a reputed brand, and is a live-star property with a spa, banquets, restaurants, a bar and more. Each of these areas was complimented by an OHM sound system that enhances the ambience and lifts the energies of the patrons. The hotel has OHM's BR Series & Bootique series speakers across the various amenities and public areas.

List of equipment used:

- **TRS 212 FOH system-Auditorium**
- **TRS 112-HN downfill-Auditorium**
- **OHM's BR series wide angled speakers-Auditorium**
- **TRS 115 for stage monitoring- Auditorium**
- **KS-3 for reference and control rooms-Auditorium**
- **OHM's Spyder software-Auditorium**
- **Cleo MK3 DSP units - Auditorium**
- **OHM's KS & BAT series speakers- Seminar and Conference hall**
- **OHM's BOOTIQUE series- 5-Star hotel**

OHM Solutions in Balurghat...

continued from pg 08

stage/actors could possibly be right in front of a speaker. Hoards of options were tried such as the possibility of a mobile system, a central hang of cluster, motorized speaker brackets and more. The approved system design however, was a stereo imaging solution, where the audience is always surrounded by the system, and the stereo FOH can be chosen as per the placement of the stage. Further they selected the correct microphones, and strategically placed subs with pre-configured delay settings for multiple top options.

Consultants Comments

"The processes, design philosophies, and professionalism of the VMT Enterprise Team was commendable. They were willing to cross their boundaries, to find better solutions for the venue. The tonal-

ity of OHM speakers truly speaks to it's British lineage." says, **Debesh Chattopadhyay**.

"We knew we had to pick OHM for such a prestigious job. The team at OHM makes the integration pretty simple for us. We are guided throughout the procedure with diagrams, schematics, and installation assistance. We are in awe of the output of the OHM systems and look forward to working with them in the future for more innovative projects" says **Gobindo Basu**, Proprietor, Art-E-Mide.

"Design is the most critical element of the system. It was a pleasure working



The stage was fitted with TRS monitors to fulfill all monitoring requirements

with like-minded professionals and the project is the result of the team's combined skill & brilliance. A special mention to the government of West Bengal for the opening of such facilities for the promotion of talent" says **Sushil John**, Director Sales-APAC.

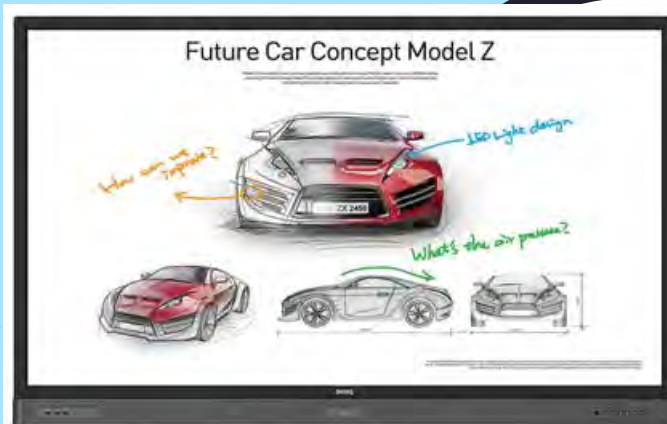


PRODUCT FOCUS OF THE MONTH

“Interactive Flat panel” *is the need of the hour to bring meetings, lectures and presentations to life with stunning visuals, crisp sound and access to inspiring content and applications. Choosing the right display for your specific needs may sometimes get tricky. There are different models to choose from depending upon the screen type, visual output and software compatibility based on the use. This list is intended to be a guide and highlights 10 such models but does not endorse any product.*

BenQ - Corporate Series IFP

Designed for modern offices, **BenQ** corporate series Interactive **Flat Panels** (IFPs) offer best-in-class tools for interactive meetings without external PCs. EZWrite annotation app and NFCPen facilitate brainstorming with efficient note-taking and effective idea-sharing. With pioneering innovations that include 4K resolution, Smart Eye-Care, Air Quality Sensor, Account Management System (AMS), Cloud Whiteboard and up to 20-point simultaneous multi-touch capability, BenQ's corporate IFPs deliver intuitive collaboration and display interactivity with the ease of wireless presentation, open-platform software compatibility, and hassle-free maintenance. It has Built-in Air Quality Sensor, Smart Eye-Care solution, Germ-Resistant Screen. It makes sharing and Collaborating easy with EZWrite 5's Cloud Whiteboard and InstaShare. It also has an Account Management System (AMS) for Personalized File Management.



Clartouch - 6000K series

A crystal-clear, anti-glare LCD display with 4K True HD Resolution-even on the Android side-ensures an optimal viewing experience with extreme clarity from any angle, even with the room lights on.

The 6000K's built-in Android in 4K allows users to access their apps and resources directly from the interactive display. Add on an optional built-in PC or WiFi module to increase the mobility.



The **6000K series** has smart, multi-touch technology that allows for 20 points of simultaneous touch on a cool, responsive, smooth-glide surface that is extremely accurate without calibration.

Eight to ten people can easily use the panel at the same time, creating a better, more collaborative experience.

Connect from any device to any application and choose to use our software- or yours. Utilize the software that works best for your work, then store content on the panel or in the cloud and access from anywhere.

Easily connect to the 6000K series panel wirelessly to up to four devices using our Collage software.

Walk the room, share screens, switch users with a

single touch. With the built-in Command app, the IT team can see and update all panels remotely from a centralized computer, instead of having to manually update multiple panels in individual classes or boardrooms. IT can also set energy settings and send out text messages to individual or organization-wide panels. This series comes with built-in speakers with volume controls directly on the front of the panel. No cords or A/V expert required.

OPTOMA - OP651RKe

Optoma's **OP651RKe** multi-touch interactive flat panels boast 4K UHD resolution and a 20-point touch-enabled display, bringing lessons and idea sharing to life in education and corporate settings. It is available in 65", 75" and 86" sizes and features anti-glare glass, a blue light filter and a wide viewing angle, that reduce eye strain while providing crisp and vivid visuals to every seat in the room. A built-in cloud drive provides easy access to Google Drive and Microsoft OneDrive. Its features include extensive connectivity, content sharing and a ready-to-use whiteboard pack with pre-installed annotation tools. It allows up to 20 touch points which enable simple group creation and collaboration. It can be easily connected to any video device via HDMI or VGA. Inspire audience engagement with immediate results analysis from polls, quizzes and surveys via mobile devices using the AirShare app.



CYBERNETYX - AirMind Panel

AirMind Panel is an interactive collaboration touch panel that was designed from ground-up to meet your modern meeting room requirements. The 65" Ultra HD 4k display with gives you the speed, accuracy, and precision touch

for a seamless MultiTouch experience.

AirMind Panel has the ability to double up as a meeting room computer. With in-built award winning EyeRIS interactive sensor technology, this panel gives you the speed, accuracy and precision during any meeting. Writing on AirMind Panel feels as natural as writing with a pen and paper. The speed, accuracy and precision gives you a seamless MultiTouch experience.

It also comes loaded with Flow App which enables team members to truly collaborate as one. With it, the team can write, illustrate and annotate their ideas on their device and share it with the rest of the team. The session can be saved and accessed at anytime.



LG - TR3BF-B Series

LG's cutting-edge touch technology in the **TR3BF-B Series** displays support dual pen & multi-touch functions. This provides accurate drawing and authentic touch quality. In addition, the Air Class and web browsers support multi-directional communication and interactive learning, which will help your business succeed. The TR3BF Series can simultaneously use up to 20 points of multitouch and 10 points of writing, as well as 2 types of stylus pens at the same time. This dual pen and multi touch offer a lifelike board writing experience and makes collaboration much easier.

It allows you to easily erase texts, pictures, etc., written on the screen by using your own hands. This is not only easier than erasing with the stylus, but also makes you feel more natural, like you're erasing a real whiteboard. The Series allows you to share screens and content with laptops and other mobile devices. This makes meetings and classes as efficient and immersive as possible. It also integrates both Android and Note Apps into a high performance SoC, without a PC.



Infocus - JTouch Plus

With 4K resolution, Total Touch Control, built-in education features, an open Android platform, and Qwizdom Software, the **JTouch Plus INF5533e** is a fully customizable, all-in-one teaching, collaboration, and presentation solution - the most education-friendly JTouch ever.



Expand and customize your platform with any Android application or game. Simply download and install as you would on your phone.

All JTouch models include the four critical applications needed for interactive touch panels: Casting, Whiteboarding, Browsing, and File Viewing. Create on a full-featured digital whiteboard, present videos and photos, browse the web, easily connect and share content from your Apple, Windows, or Android devices with wireless casting. Erase, zoom, and pull up menu options quickly and easily with incredibly intuitive touch gestures on the JTouch. Use one finger to draw, two fingers to move, and three fingers to erase on the whiteboard or when annotating on any screen. A simple swipe gesture on either side of the screen reveals a full menu of further options.

Draw, write, and capture notes on a fully customizable, built-in digital whiteboard. Choose any background on a multi-screen canvas with room for free-form drawings, diagrams, and more. Draw using your finger or one of the provided styli using a complete collection of digital pens, highlighters, shapes, lines, and colors.

PLANAR - EP5024K-T

4K Interactive LCD Display The Planar **EP5024K-T** display offers best-in-class 24x7 reliability with the stunning image quality of 4K resolution. The Ultra HD 50" display has multi-source viewing capability, supports 4K @ 60Hz through both HDMI and DisplayPort, is HDCP 2.2 compliant and can be oriented in landscape or portrait. It comes fully loaded with advanced features that matter most to digital signage and other commercial applications, such as an expansion slot supporting Intel's Open Pluggable Specification (OPS) and built-in speakers. The Planar EP5024K-T delivers superior performance and reliability for demanding public venue, corporate and control room operations. The Planar EP5024K-T offers multi-touch and multi-user technology, making it easy for multiple users to collaborate and interact at the same time.



VIEWSONIC - ViewBoard IFP6570



From executive boardrooms to kindergarten classrooms, the ViewSonic **ViewBoard IFP6570** enables limitless collaboration and endless innovation. Designed to help teams connect, collaborate, and create, this next-generation digital whiteboard delivers exactly what you need to move your ideas forward. A premium, state-of-the-art design features a bezel-less PCAP (projected capacitive) touchscreen with incredible 4K Ultra HD resolution. This highly accurate interactive screen provides for an incredibly natural and responsive handwriting experience. Using fingers, styluses, or both, multiple users can simultaneously write or draw on the huge 65" ViewBoard panel. What's more, meetings and presentations start fast thanks to convenient one-wire USB-C connectivity.

NEWLINE - TRUTOUCH RS

A versatile 4K UHD interactive display to bring more collaboration and student engagement to your classroom. Turn the display into a digital whiteboard and use your favorite software all with a single touch. With a lightweight slim frame design, Windows system and built-in OS support, embedded tools and a personalized user interface, it's the perfect solution to seamless collaboration in school and in the office.

It supports up to 20 points of touch, allowing multiple users to interact at the same time. With smooth and responsive touch, anyone can take notes, write and draw on the screen, making the classroom a truly collaborative space.

The whiteboard supports object recognition that can differentiate your finger, stylus, and palm, then react as a marker, thin pen, or eraser.

Whether you need a display for your classroom or conference room, the TRUTOUCH RS series lets you easily change the screen theme and personalize the user interface on your built-in operating system. All TRUTOUCH RS series displays come in stunning 4K UHD resolution.



SAMSUNG - QBN-W Series

Samsung's **QBN Series** offer UHD picture quality and sleek, stylish design capture audience eyes, while seamless and consistent presentation expands message sharing possibilities. The QBN Series displays leverage Samsung's Intel-



lignant Picture Quality technology to elevate content delivery in any setting. This refined presentation transforms content from any source to UHD-level quality, and optimizes on-screen text and imagery with crisp edges and fine detail. The embedded MagicINFO Player S6, backed by the powerful TIZEN operating system, boosts the displays overall performance, allows for painless content management and ensures seamless content transition and playback. Samsung's KNOX platform provides rigid three-layer protection while also securing and controlling USB and user network exchange through dedicated signage device

management. With added security, businesses can facilitate remote, PC-free meetings without risk or complexity. Beyond security and content management, QBN Series users can trust the displays' remote management for fast, efficient issue mitigation. Users can monitor and diagnose irregularities – both on their own and with help from Samsung's Network Operations Center – from any location. Its durable, IP5x-validated design ensures continuous content delivery regardless of environmental conditions.



Yamaha is committed to delivering the best background music, speech and presentation systems, with optimum quality components throughout the signal chain. Built on the three foundations of sound, design and quality, the expanding VX speakers is divided into three types; VXC in-ceiling speakers, VXS surface mount speakers and VXL slimline, column-type line array speakers. VX models range from miniature full-range units through to subtle-but-powerful subwoofers and a power-over-Ethernet (PoE) VXL unit.

NEW

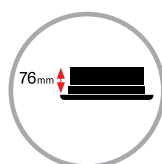
VXC2F B W



The shallowest model in the VXC series, providing the most flexible installation solution

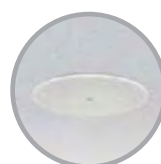
Super Slim Back Can

A back can less than 3 inches deep, which directly contributes to flexible installation.



Streamlined Design

Grilles with minimum rim width, available in black or white, and removable logo.



Pendant-mount Option

Suspension hardware and loudspeaker cosmetic cover designed for hanging from open ceilings.



NEW

VXC8S B W



An in-ceiling subwoofer with naturally extended low, featuring smart design for safer, faster installation

Portable

A built-in "Carrying Band" not only makes the speaker easy to carry around, but also increases safety when working on a stepladder.



Secure

An "Anti-Drop Tab" mechanism securely holds the speaker in place so that the installation can proceed safely and efficiently. There's also a release lever that allows the speaker to be smoothly removed from the ceiling as required.



YAMAHA MUSIC INDIA PVT. LTD.

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in.yamaha.com



“PRO AV IS NOW RECOGNIZED AS AN INDUSTRY IN INDIA”

- RISHUBH NAYAR, BOARD OF DIRECTOR



Christie has been at the forefront of a number of experiential projects in India. From its laser projection installation at Dandi Kutir for 3D Projection Mapping to its LED Wall Installation for satellite monitoring, to the fascinating projection mapping showcase using 51 laser projectors at Statue of Unity in Gujarat, Christie has made its presence felt in India with a line-up of marquee projects.

*In conversation with **Rishubh Nayar**, the newly appointed Board of Director at Christie India at the recently concluded InfoComm India in Mumbai, AV-ICNx finds out how Christie continues to push the boundary with its product technology in all sectors.*

Tell us about some of Christie's recent big projects?

RN: The biggest project we did last year was obviously the Statue of Unity project. It was a record install for any projection manufacturer. It used a total of 51 laser projectors of 25,000 lumens each, producing a total light output of about 12,75,000 lumens, thrown on a statue from as far as 600 meters away, so it was a record in many ways. Christie is a big player in the projection market, but we are getting bigger by the day in other visual technologies as well. Today on the show floor, we are highlighting the Christie MicroTiles LED. Christie has installed one of the largest LED walls in India for

satellite monitoring. It's one of the most critical installs because you need really high quality display solutions to monitor the satellites. Christie also has the largest deployment of video wall displays in India. We have installed a number of video walls in Gujarat for city surveillance. We have sold about 500 thin bezel 55" FHD553-XE displays there. So even across different visual product lines, be it flat panels or projection or LED, we have had some fascinating installs in the last financial year.

Any projects in the pipeline that you can talk about?

RN: India is a dynamic market so there are a lot of projection mapping installs which are being contemplated. The gov-

ernment is spending a lot on museums as well, so we are quite excited about that as an install market. We see a lot of growth in experiential installs in the coming years.

Has the company innovated any product keeping the Indian market in mind?

RN: We, as representatives of the Indian market, do provide regular feedback to the product managers, who are responsible for the products that Christie churns out, and fortunately, in a lot of ways our feedback has been taken very seriously, because India is a growing market and we have had a good growth rate over the last three to four years. A lot of feedback, which goes up the chain to the product

managers, is definitely considered.

**What do you have today on the floor?
Any new launches?**

RN: There are a lot of firsts this year at InfoComm India. We have LED walls such as the award-winning MicroTiles LED - the only LED wall which has a cabinet-free design and can be arranged in near-limitless ways. It starts from 1.2mm and 1.5mm pitch having a P3 color space which is one of the highest visual colors which you get in a video product. It also has a Patented Neighbor Detection and AutoMatch feature, where individual tiles automatically detect and self-locate while the sensor-based AutoMatch feature automatically matches color and brightness to achieve >97% uniformity across the whole display for the entire operational lifetime. We also have the D4K40-RGB pure laser projector, which is a first of its kind. It is the smallest and lightest high-brightness, large-venue RGB laser projector on the market. It is also one of the most compact RGB pure laser projectors with a brightness of up to 40,000 lumens. We also have a host of image processing solutions too, from the Pandora's Box family to Christie Terra, which is an AV solution enabling the transport, processing and control of audiovisual content, including 4K@60Hz video formats, over 10G Ethernet networks.

Can you tell us a little more about Pandora's Box?

RN: The Christie Pandoras Box comes from our media playback family. It was formerly part of the Coolux family. It allows many end users to depend upon Christie for a one-stop solution when it comes to blending, warping and content playback as well and that is something Coolux is renowned for. The products have been used in India and we have done fascinating installs with it as well. It has got a software version, as well as hardware version in the form of quad players and servers. Pandoras Box offers users complete control over the entire workflow, maximizing efficiency while unleashing creative possibilities to enable the creation of amazing visual experiences. Pandoras Box offers a true 3D compositing space in which both objects and plane elements can be aligned for projection

mapping or real-time 3D stereo playback scenarios at high frame rates.

Which segment are you targeting?

RN: Primarily, the experiential install segment with Christie Pandoras Box.

How according to you has the AV industry progressed in the last 5 years in India and what do you think of the quality standard of AV deployment in India?

RN: Pro AV is now recognized as an industry in India. About 10 years ago, it was considered a mass product, which is moving into a box, but now Pro AV has evolved to become an industry in India. So I think that's a massive shift and we have seen massive growth across all verti-

"We have proven ourselves globally and in India by associating with a lot of unconventional projects. When it comes to out-of-the-box system solutions, a lot of buyers depend upon Christie because of our capability to not only design solutions but deliver the back-end for that as well."

cals. From the manufacturing and integration perspective, there has been tremendous growth across verticals - whether it is hospitality, corporate or government. India is a growing market and the government is spending funds on professional AV equipment. Since Pro AV is recognized as a distinct industry in India today, the quality standards in terms of AV deployment too are definitely on par with what you get all across the globe today.

How different is the Indian market from other markets of the world?

RN: In my opinion, India is different in a lot of ways because it is relationship driven while Europe and US are still process driven.

What opportunities do you see in the Indian market, going forward?

RN: As I already mentioned, the government is investing heavily and we can expect a lot of government experiential installs in the pipeline. We have also seen growth in corporate and enterprise, which remains one of the most buoyant sectors for any manufacturer, and experiential

installs are something which the Indian market is waking up to.

What about the Cinema segment?

RN: Cinema is categorized as a completely distinct vertical, a different ball game altogether. The cinema segment is phenomenal as well. We have seen a lot of multiplexes get converted from film to digital and from lamp to laser, so the growth was eminent due to evolving technology.

What is your vision for Christie India moving forward?

RN: Apart from being completely customer-centric, what defines us as an organization is that, today we offer a large category of visual products. There are very few manufacturers such as Christie that can offer projection solutions ranging from 5,000 lumens to 40,000 lumens, narrow pixel pitch LED walls, flat panels, thin bezel video walls and image processing solutions to back it up as well. Our focus is to become a one-stop- solutions provider for any buyer so that they can depend upon solutions coming from a single manufacturer rather than cherry picking amongst 5-6 of them. This is something which we will focus on going forward.

Christie products "extremely affordable" or "rather expensive"?

RN: I don't think "expensive" is the right word, we're a premium brand and a niche product in a lot of ways, so customers do get what they're paying for - value for money. This is how I'll put it.

Anything else you want to tell our readers?

RN: We have proven ourselves globally and in India by associating with a lot of unconventional projects. When it comes to out-of-the-box system solutions, a lot of buyers depend upon Christie because of our capability to not only design solutions but deliver the back-end for that as well. The Statue of Unity is a case in point. It is the first permanent projection mapping install accomplished with Christie products and even today when it comes to such installs, 90% of the projects in India use Christie because we've stood in good stead in the past and we will continue to do so moving forward.

BLOOMBERGQUINT

AV-OTT STREAMCAST DIGITAL PLATFORM CASE STUDY

The joint venture between Bloomberg News and Quintillion Media has become the pioneer in the Indian broadcast industry as it adopted alterations propelled by the changing broadcast scenario, thus becoming the first business news channel to directly go on digital or OTT platform rather than broadcast.

While starting this channel, the main idea was to have a blend of workflow between the digital and broadcast, which is not seen in the Indian broadcast setups easily. The industry treats the two processes separately and runs them in parallel by pushing, transcoding & formatting. The

aim was not only to establish themselves on digital platform like any other mainstream media but also to go on social media platform. Though a lot of production process remained the same, the change in the distribution pattern did demand the technical update and new equipment that would facilitate the

smooth functioning of the process and provide more flexibility to capture maximum OTT platforms.

Mohit Sardana – CTO says, “We carefully handpicked an efficient partner as our System Integrator and thus entrusted this herculean responsibility on the able shoulders of **Cineom Broadcast**. Cineom



PCR at BloombergQuint Mumbai office



Mohit Sardana, CTO, BloombergQuint

is empowered by a proficient team and seasoned experience to achieve complex goals under stringent time line."

Television is changing in ways that make it increasingly difficult to consider linear broadcasting in isolation from other modes of distribution to audiences, such as the Internet, Mobile & OTT, to deal with it have designed workflow in such a way that we are Live on OTT & Social Media i.e. Facebook, Twitter, YouTube at the same time from Single Platform.

The technical head of the channel was very keen to have state-of-the art workflow which will have an unique blend of Base-band and IT. He was keen to have workflow capabilities seamlessly integrated together to give news teams the collaborative workflow, efficiency and speed required to break news, across every platform, on multiple devices. He was supported by very knowledgeable and hardworking team of engineers, who are integral part of success.

Saving time and effort is valuable to any newsroom and we were enabled to justify the same through full integration with NRCS, graphics, playout and above all AVID embracing with its futuristic broadcast abilities.

This integrated new workflow enables you to create and deliver multiple angles of a story to larger and wider audiences across TV, websites, mobile apps, and social media channels. It will save newsroom

time and operating cost while deploying iNEWS in a hybrid cloud environment.

At Quint, "We decided to have an open studio without walls or glasses, going in accordance with the Bloomberg Studio style worldwide as contrary to the conventional news studio look." Mohit Says . The facility features four studios at present of which three are open and 4th is a virtual studio. Equipped with Four operational studios and Two PCRs, BloombergQuint is the first English business news channel in India to use AR and VR technology.

The studio 2 is smaller in size compared to the main studio. It features multi camera set-up with moving video walls. It has the capacity to occupy two to three cameras. There are five such video

The technical head was keen to have workflow capabilities seamlessly integrated together to give news teams the collaborative workflow, efficiency and speed required to break news, across every platform, on multiple devices.

walls each of which features four 46 inch display screen that are used in the back drop of this studio along with fixed LED screens of the same size.

Lastly, the virtual studio, which is the virtual studio, features all Vizart equipment and the Shotoku camera support system.

For the archival, it is done via DIVA. DIVA is one of the leading systems in the world and goes well with AVID.

Oracle DIVAdirector is a digital asset management system that gives you full control of the assets housed in Oracle DIVArchive via a familiar interface, so you can quickly locate, access, and manage media.

Mr. Narender Khokhar, Sr. Broadcast Manager was very careful choosing base-band setup. "All these studios are using

Sony cameras which is the best picks from the new age camera system. The Facility is equipped with State-of-the art PCR with entirely SNMP base studio and PCR gears which can monitor remotely to find out issues instantly and remain operational without any interruption," says Narender.

Sanket Patkar, IT Infra head Said "Technological change is a constant feature in media industries & is moving rapidly towards the hand shaking of Digital and Broadcast and access to broadcast infrastructure is vital for Media Services, to meet these requirements have designed our network facility 1:1 without compromising anything using complete Backbone on 10G, Best Network Equipment i.e.

Switches, Firewall, Wifi Controllers, APs etc. & Multiple ISP, considering to deal with future expansion & upgrade challenges."

Differences the channel had to incorporate owing to difference in the delivery platform:

Being the first of its kind channel to adopt a different delivery platform BloombergQuint had to face several challenges. The change in the platform demanded changing insertion of the latest technology in the workflow.

At present, BloombergQuint is delivering the content to OTT platforms (Live & VOD). Sardana said, "We are using almost same equipment for digital as well as for the broad-

cast except a few, like Elemental which is vital in feed distribution which gives me flexibility in distribution as every OTT platform has different set of specifications and different ART rates. For instance some have a HLS M3U8 and others might have RTMP or completely different feed requirement. So it is a major advantage."

Conclusion:

BloombergQuint had started the digital platform in 2016 and the award winning platform was live from September 2017. The current facility in Mumbai was commenced on 28th April 2017 and the first dry run was hit on 16th July 2017. The company started with the live digital streaming on 21st September 2017.

Copy and Paste Broadcast Video Producer

“MANUFACTURERS ARE NOW TAKING INDIA VERY SERIOUSLY”

- KARAN JAITLY, MANAGING DIRECTOR



Hewshott International has managed to consolidate its position as a leading global Consultancy specialising in IT, AV, acoustics, audio systems, digital signage and display solutions. The AV-ICNx team met, Karan Jaitly, Hewshott's man on the spot in India, to understand how Hewshott India is adding value to state-of-the-art AV projects in India with learning and expertise acquired from its global counterparts.

In this interview, Karan provides insights on how the company is making a difference to AV projects in India, with relentless focus on providing the best possible solution for clients, while also navigating through certain prevalent practices and ensuring that Hewshott's solutions are shaped by needs and goals of the clients, regardless of manufacturer.

Tell us about the Hewshott journey in India?

KJ: We started operating in India around 2009-10 and it has been a very interesting and rewarding journey. India is certainly a very challenging market. Our clients here in India, expect a certain quality of service from us and the consistency that we are known for when we execute projects in regions like Singapore and Australia. Though we have had to put in extra effort and hard work to achieve the same outcomes, here in India as compared to other regions we operate in, the journey has been rewarding because of the repeat business that we have achieved. Repeat business has been encouraging and we have a small set of happy clients who keep coming back to us. Our clientele list has also been growing. Our team of eight are spread across offices in Mumbai and Bangalore. I would say it's been a good journey so far.

You mentioned that India is a challenging market, can you elaborate?

KJ: Overall, the industry in India is positive and optimistic. Companies are taking steps towards training their staff and pro-

viding better services. This is a huge plus.

The challenge arises when we have to navigate some unethical practices that are present in the industry. We at Hewshott believe in pure, independent consultancy – this ensures that the solution we provide is shaped by our clients' needs – regardless of manufacturer. Our engagement starts with understanding what our client hopes to achieve and working back to the technology. People who know this about us come to us specifically for our level of expertise and service. However, the challenge is also in identifying clients who appreciate what we are bringing to the table.

Although the industry has its unethical or corrupt elements, I have found that there is a sizeable number of clients who, just like me, wish to steer as far away as possible from these practices.

Is budget a challenge too?

KJ: Yes, but to a small extent. We don't see budget as that much of a challenge. I see it as our job to help our client get efficient results for their business and achieve their technology goals with the help of our expertise and guidance within

their budget. So, we do not see budget as a challenge. As long as the client understands the benefits of engaging us, we can work within their budgets. However, budget becomes a problem because of benchmarking. When the sourcing department, go out in the market, they get benchmark pricing from various consultants and this is where we struggle. Being unaffiliated with OEMs or certain brands makes it hard for us to explain to clients why other consultants are significantly cheaper than we are.

When you say that you are bringing the same consistency from other regions to India, what exactly are you bringing from Hewshott Australia?

KJ: With AV increasingly overlapping with IT, at Hewshott too we are pushing to grow our IT Capabilities. Our Australia office has made more advances than the India office in developing their core IT strength, so we rely on them a little bit and learn from them. Also, Acoustics is a big aspect in Australia. In Australia, the government has acoustic regulations that constructed buildings must follow. Therefore, Australia team's level of expertise in



Samsung's largest mobile experience centre in the world in Bangalore includes an indoor and an outdoor video wall. The indoor videowall (9.6m x 5.4 m) deployed by Hewshott, has a 2.5 mm pixel pitch and 4K resolution.

acoustics is very high. **Abhinav**, our acoustic consultant in India regularly interacts with the Australia team to come up with solutions for tricky spaces and training. We not only work with the Australia office but also our UK, Hong Kong, and Singapore offices. The team in India supports the global team on projects in UK, Australia, Japan and other countries.

How big is your team in India?

KJ: We are eight technical / project staff right now, not counting any back-end or administrative people.

Are all of them certified?

KJ: We focus a lot on manufacturer trainings on newly launched products, as we need to be updated about the products and understand how they work or will fit into our designs. We regularly attend trainings by manufacturers like *Biamp*, *QSC*, *Panasonic* and *Harman*. **Jose Kurian** is a senior consultant on our team and he is CTS certified. **Praveen RP**, our newest employee, and I are working on our CTS certification. However, sometimes it becomes tough for us to balance the certification with our own workload so we put extra efforts into making sure that our certifications are up to date.

Tell us about some of your big projects in India?

KJ: We recently completed a state-of-the-art campus for *Goldman Sachs*. It's a

1.2 million sq. ft. project, spread across three 10-storey towers in Bangalore. *Goldman Sachs* had multiple offices across Bangalore, which they shut down and moved staff into one campus, which also has the bandwidth for future expansions. It was a pretty substantial project. The project involved designing several facilities, including an auditorium, multi-function spaces, flexible conference and training rooms, fitness centers, etc. At some points we had up to three resources working on the project and it kept us busy for over a year. We aren't aware of the AV spend as *Goldman Sachs*, manages procurement and they don't disclose any details, but I can estimate it may be around five-six million dollars spend only on AV. It was an exciting project to be a part of.

Do you have say in, which system integrator you would like to work with, or does the client decide that?

KJ: As consultants, it is our job to be aware of the pluses and limitations of the various system integrators. This is what allows to offer our clients sound advice on the integrator they choose. Clients do consider our suggestions, but the final decision is always theirs. Sometimes the choice is based on budgets and it might not be the integrator we have suggested, but we don't have a choice. We have to work with the selected system integrator to achieve the desired result. We cannot complain if the

client choose an integrator that wasn't our first choice. Everybody has pluses and minuses but we do not want to criticize anybody. As a consultant, it is my job to work with the System integrator so that they fully understand the scope of the project.

How strongly is Hewshott approaching the stadia segment in India?

KJ: Stadia is a prospective avenue for us in India. *Hewshott* have had some success in this area in Australia. Our Australian office was involved with re-specifying the scoreboard video wall of the Western Australia Cricket Ground (WACA stadium) at Perth. They also assessed the audio system. The Perth office were also responsible for consultancy and project management for Perth Arena's complex specialist areas. This was eventually a multi-award winning project that our Australia office had a major role in delivering. In India, unfortunately we have not been able to tap this sector. It's certainly an area of great interest for us and it is completely down our alley in terms of expertise and what we do, but unfortunately we haven't got the right break as yet.

But is there any potential?

KJ: Yes, certainly. There's a lot of technology that goes into stadiums and arenas. You have the PA system, digital signage distribution, the audio system, the commentary booths and how the camera signal is distributed. For example, AV tech-

nology has transformed the way cricket is watched. The best cricket grounds in the industry today have interface-less and touch-less interactivity, wireless gateway and presentation systems, laser technology and curved screen technology. From T20 to test matches you could see the use of technology that contributes to everything – from umpire decisions to the spectator experience.

What are some of the unique integration technologies impacting the AV industry?

KJ: The recent and one of the most obvious one to mention is AV over IP. We've really seen its adoption increase significantly. We've seen the evolution of NDI which is a very interesting AV over IP system because it gives full video production capabilities that come at a price point which is relatively reasonable compared to the traditional video production facilities.

What are some of the most important milestones or developments that the Indian AV Industry has seen in the last five years?

KJ: We can see that manufacturers are now taking India very seriously. Around a decade ago, there were very few manufacturers that were offering technical or sales support in India was not given the right level of importance. Things have changed since then; India is now an equally important market. The way the manufacturers deal with big projects is refreshing to see. As consultants specifying equipment, it gives us a lot of confidence to reassure clients that a particular manufacturer will be able to address any issues that they may have post sales.

What is your vision for India, for the next 5 years?

KJ: We would like to open another office in Chennai or Hyderabad and grow the team in India. We don't have a sales team; we have expanded organically as the work has increased. As business has grown we have expanded our team from just two people to eight. We're involved in quite a few projects and I'd like to increase that even more. The projects we're on are mostly in the corporate sector. I want to reach a point where we are involved in multiple verticals, where we are working on government and stadia

projects. I'd definitely like to diversify our consultancy portfolio in India.

Do you get support from your other offices?

KJ: We collaborate with Hewshott offices in other countries very often because we have a lot of global clients. If I have done good work for one of our global clients in India, they may come and ask our London office to get involved on their projects in Europe, and vice versa. David Lee, our Principal Consultant for acoustics (who used to be based in Australia) is based in Singapore and our acoustic team here regularly run their designs past him. Acoustics can be challenging as every decision you make can have a huge impact on the budget and the overall results. For example, if you change the thickness of glass in a hotel façade even by one millimeter, the impact on the client's budget

We've seen the evolution of NDI which is a very interesting AV over IP system because it gives full video production capabilities that come at a price point which is relatively reasonable compared to the traditional video production facilities.

can be in the millions. Similarly with AV, if the teams in London or Australia come up with an innovative solution they will share their learnings so that the company benefits as a whole. Since decisions surrounding technology spends are very crucial, we have an internal review system that catches any errors or inaccuracies at the very beginning.

What are your other main projects, besides Goldman Sachs?

KJ: Besides Goldman Sachs, we have a working relationship with VMware, which is a Dell company. VMware have been our clients for the past three years. We are currently working on a multi-storey project for them in Bangalore. Besides Bangalore, we have done projects for them all over India in these last three years, including cities like Mumbai, Pune and Chennai.

We are also employed on ongoing VMware projects in Beijing, Taiwan, Australia, and Japan. Morgan Stanley is another esteemed client. Since the last five years, we have been constantly working with them on at least one active contract.

We have also completed the *Samsung Experience Centre* at Opera House in Bangalore a year ago. It's a flagship store and Samsung's largest mobile experience centre in the world. The project included an indoor and an outdoor video wall. The indoor videowall 9.6m x 5.4 m, has a 2.5 mm pixel pitch and 4K resolution. It is the first of its kind in India.

In Mumbai, we are working on a project for *Bombay Dyeing Realty*. The Wadias are coming up with a two-tower luxury apartment complex. It's called Island City Centre- ICC. We are engaged to provide acoustic consultancy building-wide. We

are also in talks to do the AV and home automation for the penthouses in the tower. Additionally, we are in the final stages of a corporate office project in BKC for *Estee Lauder*.

We are also doing a *Novotel* in Mumbai- Andheri.

What is a specialty that sets you apart from other AV consultants?

KJ: We want to understand the client's business and how they use technology and what would fit in with their business. What sets us apart is that we are very clear minded about our goals; we have no distractions. My job is to understand what is right for my clients. I don't want them to overspend but at the same time I don't want them to underspend and get the wrong outcome.

Which sector do you see booming in India going forward?

KJ: Looking at the market today, the overall feeling is a reassuring one; at the very least in the corporate sector, the future is looking optimistic. I am also hoping to find some success in the education sector. There are many international schools around and collaboration and distance learning have become big. In fact, I've just submitted a proposal for an institute in Mumbai, which is one of the top 10 ranked institutes in the world. The residential market is another avenue we are trying to break in to. So yes, I am carefully optimistic about these sectors in India.

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KEY AV TRENDS THAT WILL SHAPE THE FUTURE OF EDUCATION

Back Tracking AV Trends in 2019

As 2019 draws to a close, let's reflect upon some of the interesting and eventful happenings in the audiovisual technology and collaboration sector. The industry, in general, witnessed several high-level mergers and acquisitions, the emergence of new-age technologies, and an avalanche of new products from both big and small enterprises inundating the market. Some of which made headlines, a few of which were long forgotten. In this article, I'll take you through how AV tech impacts education and a few key trends that's going to bring about the much-awaited change.

The Future of AV in Education

Education has forever been at the focal point of the AV industry. Lately, there's been a lot of stress for a unified solution for classrooms. Keeping in mind the high-cost and highly complex AV integrations in schools and colleges, the focus will be on providing an end-to-to-end solution for education spaces.

It is highly anticipated that the AV trends for the coming year will witness consolidation in the digital interactive whiteboard and collaboration board segment. Over the last couple of years, one of the most prominent developments in classroom technology has been the rapid adoption of interactive whiteboards and is now the most commonly used piece of AV classroom technology. Schools, however, are slowly moving towards flat panel LED displays. LED panels are growing in size, shrinking in depth, and are offering features and picture quality not though possible with projectors. Preferred

for their bright backlighting, LED's don't need specific light conditions to operate. But as one new tech replaces the other, the emergence of diverse interactive solutions are slowly replacing projectors and interactive whiteboards across educational institutions and workspaces. Like in

As one new tech replaces the other, the emergence of diverse interactive solutions are slowly replacing projectors and interactive whiteboards across educational institutions.

2019, education AV trends in the coming year are also anticipated to undergo a paradigm shift. But what is this shift and where is educational AV poised to move from here?

The Path Forward for Educational AV

With schools moving their content into the cloud, and students toting more devices than ever, educational AV is poised to be more important than ever before. The industry is expected to see ever-more wireless connections and devices that retrofit the existing setup.

One such equipment recently launched at Didac India is Galileo One by Cybernetyx. It's a All-in-one wireless interactive teaching system for displays with built-in AI powered LMS. It fits on top on any flat panel / TV and can turn it into a full-blown touch interactive teaching device. It's quite amazing to see where educational AV is moving to, considering this tiny device not only has a range of teaching

tools but also eliminates the need to buy content.

Teachers get access to free cloud-based content which can be shared with students at their discretion. What amazes me the most is that there's hardly any upkeep required, it's environment-friendly, cost-effective and a complete, end-to-end scalable solution.

The Bottom Line

Ultimately, the future of audiovisual technology in education rests with educators. The best technology in the world will fail in the classroom if it does not meet teaching goals. The Galileo One is a stunning

example of tech in the classroom that's bound to be a key enabler of superior learning outcomes for every educational institution. In a fast-moving, dynamic environment, staying abreast of what's possible today, and what might be possible tomorrow, is essential.

Ramya Chatterjee has over 17 years of experience, and was recently appointed as the CEO of Cybernetyx Technik. This is his second stint with the company. Earlier he had joined Cybernetyx Technik as Director – Sales & Marketing and was instrumental in transforming a technology start-up to a robust multi-million multinational global enterprise in a short span. He is a dynamic change-agent, skilled in positioning organizations to achieve operational excellence with strong ROI drive.

BOSE PROFESSIONAL CONVENES A STELLAR AURAL EXPERIENCE AT THE ICONIC MINTO HALL'S NEW CONVENTION CENTRE IN BHOPAL

Restoring the Minto Hall building with the latest in ultra-modern offerings, while preserving its heritage value and original grandeur was the primary objective" said Hari Ranjan Rao, principal secretary of

Professional's vastly impressive FreeSpace and ControlSpace series of products features in each of the key congregation areas at Minto Hall which includes the main hall, two meeting rooms, a

technologies, and design methodology that would meet and exceed our expectations – not just in terms of the sound performance, but also in terms of aesthetic appeal and maintaining the structural and visual integrity of the building" explains **Aparjit Dhamija** of Fortune Telecom, the project's Official Integrator.

The stellar highlight of the premise is undoubtedly the main hall, which now stands as a multi-purpose space to host occasions like large-scale get-togethers, banquets, felicitations, etc. Sporting a flexible-seating capacity of over 500 people along with a plush balcony section with a fixed 120 seating hilt, the dexterous functional nature of the main hall warranted the need for an agile sound system that could proficiently reinforce the wide range of MICE activities that the venue management envisaged. The technical team from Bose Professional worked closely with the venue's management and principal architect Puneet Sohal of Urban Systems to understand various nuances of the building's architecture and aesthetics, following which an exhaustive analysis that involved comprehensive acoustic modeling of the main hall was conducted.

Puneet Sohal shares, "We had clear guidelines to work by, of which the most critical aspect was ensuring that the structural integrity and architectural beauty of the building be maintained. This automatically posed several restrictions in terms of speaker placements; which was compounded by the fact that the hall space is inherently reverberant owing to its dimensions and structural composition. The integration team, however, had a befitting answer to all the challenges. Their team of experts along with Bose Professional's fantastic line of products eventually delivered a superlative sound system that provides great quality sound performance, all while sticking to the brief provided by the venue management."

Following a detailed physical mapping of the hall space, the design and



Minto Hall auditorium's system consists of Left-Right asymmetrical RoomMatch arrays, with the left array comprising RM602810, RM602820, and RM602840 modules, while the right array comprises RM286010, RM286020, and RM286040 modules

MP Tourism department and managing director of the State Tourism Board, as he emphasized the state government's vision to resurrect the statures building back to its former glory and eminence.

From the architectural standpoint, Minto Hall exudes a synthesis of Nawabi era and Imperial style, and post-independence, the building was used as the mainstay of the MP state assembly up until 1996. Following the recent Rs. 64 crore makeover, however, the magnanimous structure now stands tall as a state-of-the-art convention centre complete with luxuries that one would expect from a world-class establishment. "The idea was to have an iconic and world-class space that would promote meetings, incentives, conferences and exhibitions (MICE) tourism in MP" explains Rao. A bespoke and leading-edge audio architecture for the entire space using a plethora of products from global pro audio leaders Bose Professional proved to be the answer that the management was looking for.

A carefully selected amalgam of high-performance products from Bose



Vibhor Khanna, Country Manager, Bose Professional India

committee room, a boardroom, and a luxurious roof-top dining space called '1909 - The Crown of Bhopal' where one can enjoy the vibrant beauty of the city.

"Partnering with Bose was a decision that was motivated by the brand's long-standing reputation for delivering outstanding pro audio systems and services not just in India, but across the world. We found only Bose to have the kind of expertise in products,

integration team used Bose' Modeler design software to identify key reverberation and peculiar reflection patterns, and subsequently narrowed down on the precise combination of RoomMatch loudspeakers, PowerMatch amplifiers and ControlSpace processors that would be apt for the space in terms of delivering a superlative soundscape coverage that would encompass every seat. Modeler also helped the team in determining the precise height of the FOH array system such that it canceled any untoward sound reflections while ensuring that the audience seated in the balcony section enjoyed a clear line of sight.

"The integration team have done a fabulous job with the sound system throughout the entire property; the main hall in particular, where the sound experience is absolutely fabulous. The convention space sounds so beautiful – the sound experience is truly immersive. Whether you're seated at the balcony section or down at the main congregation space, the quality of sound is spectacular, and anybody who's ever been a part of any function at the main hall will testify to this. The main hall will absolutely love the sound. Our audiences love the atmosphere here, and it is so heartening to witness how deeply engaging the sound system actually is. Kudos to the entire audio team, and great commendation to Bose Professional for offering us such a wonderful solution", exclaims **Jitendra Bhardwaj**, executive engineer at the Madhya Pradesh State Tourism Development Corporation (MPSTDC).

The auditorium's system consists of Left-Right asymmetrical RoomMatch arrays, with the left array comprising RM602810, RM602820, and RM602840 modules, while the right array comprises RM286010, RM286020, and RM286040 modules. The specifically tailored dispersion angles and highly steerable nature of these modules allowed engineers direct the sound in a manner that almost negated unwanted reflections from the side walls while providing maximum impact of high-quality sound directly at the main audience area including those seated at the balcony section. Additionally, the RoomMatch arrays' revolutionary Delta-Q progressive directivity technology proved

to be the cornerstone in achieving uniform SPL equalization and pristine tonal balance. Multiple units of the RMS 215 subwoofers assuring top quality low-frequency fidelity, have been suspended as part of the arrays; with the modules and subwoofers being aligned and tuned to precise perfection to form a well-balanced and harmonious sound system that assures a truly premium aural experience. Multiple units of the Bose RoomMatch Utility multi-utility loudspeakers, which use the same compression drivers as the main array speakers, have also been integrated within the space to further enhance the listening experience, with the RMU108 and RMU105 speakers deployed as stage monitors and stage front-fills respectively. The balcony section too enjoys superlative sound, with multiple numbers of the RMU206 multi-utility loudspeakers deployed at strategic locations ensuring pristine audio experience at every seat. The loudspeaker system at the main hall is driven by highly configurable PowerMatch amplifiers PM8500 multi-channel amplifiers providing clean and efficient power; while processing and overall management take place through the modular ControlSpace ESP-880 Engineered Sound Processor.

In addition to the main convention hall, the high-quality performance value of Bose Professional products is experienced across other areas of the premise as well, with a range of install specific products from the acclaimed FreeSpace and ControlSpace series deployed throughout the three-floor expanse of the premise. Sections like the lobbies and walk-throughs sporting multiple units of the DS16F in-ceiling speakers which are almost inconspicuous but provide high power output with pristine quality sound. The plush rooftop restaurant, 1909 – The Crown of Bhopal, also features the compact yet extremely powerful FS3

surface-mount satellite speaker system complete with subwoofers for that extra bit of punch when party mode kicks in. The loudspeaker system across all common areas including the restaurant is controlled through units of the ever-efficient ESP-880 engineered sound processors and powered through the ever-dependable PowerMatch PM8250 amplifiers.

Vibhor Khanna, Country Manager, Bose Professional India, professes his elation saying, "Minto Hall is a symbol of architectural beauty and rich heritage, and for us at Bose Professional to be chosen as their preferred sound partner is a matter of great pride. The cumulate of our technologically superior products and Fortune Telecom's team of dedicated seasoned professionals has enabled us to live up to the faith that the management entrusted in Bose to deliver a truly world-class sound experience for the new convention space. And the eventual sound experience there is something that everyone can be proud of. The Minto Hall convention centre is a shining example of a truly exceptional congregational space, and it is only befitting that the hall sounds every bit as spectacular as it looks!"



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THE PIANO MAN JAZZ CLUB SHINES WITH HARMAN PROFESSIONAL SOLUTIONS LIVE SOUND SOLUTIONS

AM INTEGRATED AND CRESCENDO AV SELECT JBL LOUDSPEAKERS, AKG MICROPHONES, SOUNDCRAFT MIXERS AND MARTIN LIGHTING FIXTURES TO CREATE AN INTIMATE LIVE MUSIC ENVIRONMENT

AM Integrated and Crescendo AV recently outfitted The Piano Man Jazz Club with a complete HARMAN Professional Solutions sound reinforcement system to ensure a one-of-a-kind live entertainment experience.

The Piano Man Jazz Club is a full-service restaurant, bar and music venue founded in 2015 by classically-trained pianist and entrepreneur **Arjun Sagar Gupta**. The first location in Delhi was so successful, Gupta decided to open a second location in the bustling city of Gurugram. In addition to being one of the few venues in India that showcases live jazz music, The Piano Man Jazz Club also features diverse acts from young singer-songwriters to international brass bands.

In order to ensure a premium live entertainment experience for its guests, The Piano Man Jazz Club Gurugram hired AM Integrated and Crescendo AV to design and integrate end-to-end HARMAN Professional audio and lighting systems, including solutions by JBL, AKG, Soundcraft and Martin Professional.

"We wanted premium audio solutions that would provide unique experiences for our artists and guests," said Gupta.



delivered a comprehensive live entertainment system without compromising any of our ideals."

The Piano Man Jazz Club Gurugram is a wide, oval-shaped venue—a design that was chosen specifically to achieve a close and intimate seating arrangement around the stage. This design posed a unique set of acoustic challenges when it came to implementing a front-of-house speaker system.

The integration team overcame this challenge by installing a main array of two JBL AM7212/00 loudspeakers and four ASB6115 subwoofers, augmented

digital mixing console ensures top-notch mixes for audience and performers alike, while AKG microphones are used onstage for their premium clarity and balanced



Martin lighting fixtures provides dynamic effects to each performance



The Piano Man Jazz Club installed two JBL AM7212/00 loudspeakers, four ASB6115 subwoofers, augmented by AC16/18 loudspeakers as side fills along with JBL EON615 powered speakers and EON618/230 powered subs.

"We chose HARMAN for its wide range of loudspeakers, superior quality of end-to-end solutions and their extensive service support network. Getting a rich and warm sound can be a challenge, but HARMAN

by AC16/18 loudspeakers as side fills. JBL EON615 powered speakers and EON618/230 powered subs deliver exceptional onstage monitoring for the performing musicians. A Soundcraft Si Impact 32

tonal qualities. An array of Martin lighting fixtures provides dynamic effects in the club, turning each performance into a unique and vibrant experience.

"Our venue is a space where the artist's performance is always prioritized over the customer," concluded Gupta. "Every night, there's a silent song—the band picks one song, and we shut down the bars, stop all service and let a moment of pure music without distraction pull people back into the magic happening on stage. The HARMAN system allows to optimize the artist's experience onstage without compromising the audience's experience. We hope to expand small chains of jazz clubs all over the country to provide a platform for artists to showcase their talent, and for customers to listen the best jazz in an extraordinary environment."

ALLEN & HEATH

AB168

AB168 is a 48kHz portable remote AudioRack for use with the GLD, Qu, Avantis and SQ mixers.

Featuring 16 mic pre-amps with Phantom Power indicators and 8 XLR line outs, AB168 runs on Allen & Heath's proprietary dSNAKE protocol and is compatible with both the Qu and GLD ranges.

Adding an AB168 to

a compatible system allows some or all I/O to be positioned up to 100m from the mixer. The unit connects over a single Cat5 cable to the mixer or AR2412 AudioRack via a secure dSNAKE EtherCon port. A second EtherCon port is provided for daisy-chaining to another AB168 box or connection of a ME personal mixing system. AB168 auto updates its firmware to synchronise with the system.

The rack's rugged design, including rubber bumpers, renders it highly roadworthy and allows it to be placed on the stage floor during performances. Weighing in at just 4.8kg and featuring a sturdy carry handle, AB168 is also designed for maximum convenience and portability.



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LivePremier presentation systems



The **LivePremier series** of products offers versatile 4K digital connectivity, unmatched real-time 10/12-bit 4:4:4 video processing power, best-in-class image quality and pure 4K60p on each input and output with ultra-low latency. Ideally tailored to large scale auditoriums, conference rooms, staging live events, houses of worship, corporate lobbies and sports venues, the LivePremier series offers almost unlimited possibilities for future applications and possesses enough bandwidth to support evolving requirements, such as 8K, higher framerates and more. The modular design of the LivePremier series allows you to easily swap in I/O cards to accommodate a variety of connectivity arrangements and your match source and display requirements. Per chassis, it features up to 24 inputs and 20 outputs configurable as single screens, edge-blended widescreens or scaled auxiliary outputs, 2 dedicated Multiviewer outputs and up to 24x 4K or 48x HD freely assignable layers. The series also offers powerful features that will allow you to

handle any creative display configuration, such as a custom output formats, output rotation, AOI, bezel compensation and pixel pitch management.

BLUSTREAM ACM200

ACM200 UHD Multicast distribution platform allows distribution of HDMI video over a 1GB Network switch. The ACM200 Advanced Control Module allows for advanced third party control of the Multicast system using TCP/IP, RS-232 and IR.

It includes a web interface module for control and configuration of the Multicast system and features 'drag and drop' source selection with video preview and independent routing of IR, RS-232, USB/KVM, Audio and Video.

Pre-built Blustream product drivers simplify Multicast product installation and negate the need for an understanding of complex network infrastructures.



CHRISTIE Terra Transmitter

The Christie **Terra Transmitter** processes audiovisual sources and control signals to deliver uncompressed, zero-frame latency, artifact-free content over 10G networks. The Terra Transmitter supports video resolutions up to 4K@60Hz and accepts multiple

content and control connections, including HDMI 2.0, USB, HDCP 2.2, DisplayPort 1.2, serial RS-232, EDID and more. This powerful and flexible component does not require additional devices to process signals.

Featuring front-facing LED indicators, the Terra

Transmitter provides quick status reports for increased ease-of-operation, system validation and user-confidence. SDVoE-compliant and supporting a wide range of video formats, it functions seamlessly as part of a Christie Terra solution or third-party SDVoE components, displays and devices to create complete AV-over-IP distribution, processing and KVM systems.



CRESTRON DM-NVX-D80-IOAV

The Crestron **DM-NVX-D80-IOAV** is a compact AV over IP decoder that functions as a receiver. Compatible with the Intel Open Pluggable Specification (OPS), the DM-NVX-D80-IOAV is equipped with an OPS port and is designed for installation into the OPS slot of an OPS supported display. The OPS port enables the DM-NVX-D80-IOAV to receive power from the display and to feed AV and control signals to the display. It also routes USB 2.0 signals between USB peripheral and host devices. The DM-NVX-D80-IOAV also features copper LAN connectivity and provides an affordable solution for a DM NVX network AV installation of any size. DM NVX technology ensures real time, full motion 4K60 video performance for the presentation of multimedia, videoconferencing, and live camera images.



DATAPATH Datapath Fx4

Datapath Fx4 is a multi-faceted stand alone display controller. The Fx4 supports a choice of inputs, high bandwidth loop-through as well as 4 genlocked outputs in either DisplayPort or HDMI. The Fx4 features a DisplayPort1.2 main input alongside two HDMI1.4 inputs offering 4K 4096 x 2160p at 60fps. The intuitive user interface

allows users to determine which input is used. Each output monitor can take its input from any region of the input image as all of the required cropping, scaling, rotation and frame-rate conversion is handled by the Fx4 hardware. These regions can overlap to allow any output to replicate another or can be configured to support any

creative splice of the source material. This allows the support of many nonrectangular screen arrangements, as well as any mix of monitor orientations allowing users to create an almost unlimited multi-monitor canvas. The Fx4 also allows users to pre-load an image for immediate display in those cases when the media source or cables malfunction and no signal is being received.



EXTRON QUANTUM ULTRA

Quantum Ultra is a modular 4K videowall processor with high-performance scaling and windowing technology which accommodates a wide range of applications. It features the Extron Vector 4K scaling engine and HyperLane video bus capable of carrying a multitude of high-resolution sources for unmatched real time performance. A single processor can support multiple videowalls with mixed resolutions and screen orientations, providing flexible system design with minimal complexity and cost. Portrait and landscape output support, output overlap, and mullion compensation provide compatibility with nearly any display technology. RS 232 and Ethernet interfaces provide direct connections for control systems. The Quantum Ultra processor's configurability, features, and performance make it a future-ready solution for any videowall application.



KRAMER VP-772

VP-772 is an eight-input high-quality dual scaler with special effect transitions for the rental and staging and the live events market and for other applications where a dual-scaler is needed, with an option to output in 4K30 UHD (3840x2160) in single output mode. It features DVI-U inputs (including analog, DVI and HDMI support) and balanced stereo audio. The unit scales and processes the selected video and audio inputs, and outputs to two independent DVI-I outputs (program and preview) together with two balanced stereo audio outputs. It comes with extensive high-quality pull-down and de-interlacing algorithms, and full up-and down-scaling of the video inputs.

Any video source can be inserted into or positioned next to any other video source with full window positioning and sizing controls. VP-772 has a seamless Video Switching with cuts or built-in special effect transitions, including horizontal, vertical, diagonal circle and chessboard wipes, cross-fading, and more. The dual Scalers facilitate "live" seamless transitions from one source to another with two independent outputs: a PREVIEW OUT and a PROGRAM OUT. The PREVIEW output, including an OSD menu for making adjustments, is used for determining how the scaled output looks before displaying live during a presentation.





PLANAR

LOOKTHRU TRANSPARENT OLED

The Planar **LookThru Transparent OLED** Display makes it possible to create truly see-through installations with a virtually frameless glass design by utilizing cutting-edge Organic Light Emitting Diode (OLED) technology, eliminating the need for a backlight or enclosure. With 38 percent light transmissivity, the glass delivers all the benefits of interactive digital signage while allowing consumers to see the product or scenes behind the display.

Planar LookThru Transparent OLED Displays are ideal for retail merchandising, corporate displays, museum exhibits, award or trophy cases in education or corporate settings, tradeshow exhibits and a wide range of other architectural applications.



TWAUDIO

B10i



The **B10i** delivers tight, focused bass from a box barely larger than a microwave oven. Its specifically developed long excursion 10" cone driver with an uncompromising 3" dual voice coil delivers usable frequency response down to 40 Hz. This makes the B10i a perfect match for restaurants, clubs and many other applications as main sub or discretely distributed as part of a larger system.

The B10i comes with i-series standard screw terminal connections at the rear with optional speakON and cable gland available. Four recessed M10 threads allow multiple mounting options via brackets or steel wires. The 10" cone driver with 3" dual voice coil and 700 W program power capacity generates a usable frequency response down to 40 Hz. It is also equipped with i-series screw terminal; speakON and cable gland optional.

MARTIN AUDIO APPOINTS VARDHAMAN MEGATECH (VMT) IN INDIA

MARTIN AUDIO HAS APPOINTED VARDHAMAN MEGATECH PVT. LTD (VMT) AS ITS EXCLUSIVE DISTRIBUTION PARTNER FOR INDIA.

The appointment was confirmed by **David McKinney**, managing director of Generation AV, who undertake Martin Audio sales strategy, account management and technical support duties in the Asia Pacific territory. "VMT has a strength in all the vertical markets that Martin

support across all parts of India.

Martin Audio will join VMT's Distribution Division, which is focusing on building a nationwide distribution network, thereby enabling transparent and quick logistics, support and sales. "VMT Distribution was set up with the goal of ensuring the pres-

His sentiments were echoed by **Sushil John**, Executive Director, VMT Distribution. "Their vision to innovate and produce world leading equipment matches our values of providing the best in music technology to our customers."

VMT will receive full support of Generation AV, who have been boosted by the arrival of the experienced **Sanak Pandit**; he will work hand in hand with the VMT team to provide on the ground support for Martin Audio's customer base. Said David McKinney, "Sanak has a strong background in the touring market from his time at SD Audio and V&P Sound, and so he is able to hit the ground running. Sanak will be based in Bangalore."

VMT say they are particularly excited by the arrival of WPS, the fourth model in the award winning and best-selling Wavefront Precision optimised line array series.

Dom Harter, Martin Audio MD, rubber stamped this. "With the expansion of the Wavefront Precision Series, and the versatility of the MLA series generally, Martin Audio now has a full line up for the touring and performance market. It is therefore gratifying to see that VMT will be drawing on its long history and strong relationships in the market to focus their efforts on these segments.

"VMT and Martin Audio will work closely together to ensure we offer top class support to all Martin Audio customers in India. It bodes well for an exciting future."



VMT's Distribution Division will focus on building a nationwide distribution network, thereby enabling transparent and quick logistics, support and sales

Audio is present in including both Touring and Installation," he stated. "VMT are headquartered in Mumbai but have teams all across the country and are set up to ensure Martin Audio customers have quick

ence of high-quality brands in the rapidly growing Indian sub-continent. In particular, we aim to promote growth in the two and three tier cities," said **Mitul Soni**, National Sales Manager, VMT Distribution.

KANISHKA TONGYA JOINS REAL IMAGE AS BUSINESS HEAD - MEDIA SOLUTION

Real Image, a division of Qube Cinema Technologies Pvt. Ltd. has announced that **Kanishka Tongya** has been appointed as Business Head - Media Solutions for Real Image.

Kanishka will be spearheading the strategic growth for the Media Technology Solutions business, with an aim to expand its footprint beyond broadcast and into other related opportunities, including post-production, OTT, etc., both in India and other markets.

Kanishka joins Real Image after a six-year stint in Interra, where he was the face of the company in the Asia Pacific, Middle East, and Africa regions, leading all customer-facing teams like Sales, Pre-Sales, Customer Support, Marketing, and MarCom.

He has extensive experience in the Banking, Financial Services, Insurance (BSFI), Manufacturing, Transport and Media & Broadcast industries.



Kanishka Tongya, Business Head - Media Solutions for Real Image

SILICONCORE DISRUPTS LED DISPLAY MARKET WITH LOTUS 0.83MM LAUNCH

SiliconCore Technology announced another breakthrough with its highest resolution and brightest display ever.

At 2000 nits, the Lotus 0.83mm display surpasses the market with the brightest and most efficient sub-1mm pitch LED display in the world, consuming up to 50% less power compared to similar displays of its kind.

It features SiliconCore's latest innovation, LISA – a proprietary encapsulation process that guards the high density LEDs and ensures color uniformity and a long lifetime. Its cool surface is dust and water resistant which makes it very durable and suitable for touch and custom install applications, with a very close viewing distance.

Eric Li, SiliconCore's CEO, comments:

"This new Lotus 0.83mm display is a huge achievement for the SiliconCore innovation teams and delivers a viable, high resolution LED display to the market for the first time."

A 4K resolution display can now be achieved at 144" with a smooth, touchable surface. This makes the technology perfect for a variety of environments including board rooms and meeting spaces, design centers, lobbies, home theatres, visualization applications and control rooms.

The display has excellent HDR performance with a visible 16 bit grayscale using SiliconCore's Z.A.C.H. driver chip. This technology allows for better color fidelity



Silicon Lotus 0.83mm

in low brightness with more detail for black and low grey scale content.

www.av-icnx.com

VUWALL PRESENTS TRX 2.0 AV-OVER-IP MANAGEMENT PLATFORM

VuWall announced the next generation of its solution for distribution of AV signals over standard IP networks. The solution, called TRx 2.0, is designed for presentation rooms, control rooms and complex distributions across multiple buildings typically found on campuses.

The solution combines high end quality streaming up to 4K resolution to drive unlimited numbers of inputs and outputs, and comes with a family of encoders, decoders, and video walls over IP processors.

The management of the system is accomplished through a central TRx server

for an easy deployment of a large number of devices.

The intuitive web interface allows to maintain and control the systems from any point on the network.

By definition, an AV network consists of many connected devices that need to be deployed and operated within multiple rooms, floors or buildings. The complexity of such an installation may suggest a very cumbersome experience both in the configuration, the operation and the maintenance phase. With VuWall's TRx AV network management

solution, these processes are performed with simplicity, amongst others thanks to an intuitive "drag and drop" user interface.

This new product line is of course also designed to communicate seamlessly with the VuWall2-based product line.

KEY FEATURES OF TRX:

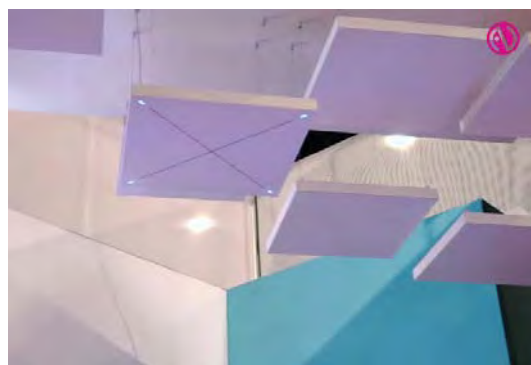
- Multibrand
- Intuitive drag-and-drop interface
- Bulk import and export of device configuration files
- Significant cost and time saving over the lifecycle of the solution

SENNHEISER SHOWCASES THE BEST OF INSTALLED SOUND

TEAMCONNECT CEILING 2, SPEECHLINE DIGITAL, MOBILECONNECT AND ADN WIRED

Sennheiser showcased their product prowess in the world of installed sound at Infocomm India 2019. On display were Sennheiser's Business communication products.

Vipin Pungalia, Director Professional Segment at Sennheiser Electronics India, said, "We are committed to create products which helps the industry evolve and make it as user friendly as possible. Our focus is to make business simple for industry professionals through an integrated and seamless system to make their journey as pleasant as possible. This year



TeamConnect Ceiling 2

at Infocomm 2019, we have communicated the same by demonstrating products which have been created keeping in mind

the excellent customer centric design coupled with excellent audio quality."

Products showcased at InfoComm 2019:

TeamConnect Ceiling

2: It is ideal for mid to large sized meeting rooms. It uses the latest beam-forming technology to automatically focus on the voice of the speaker in a meeting, regardless of his position. 29 individual, omnidirectional microphone capsules guarantee the best speech intelligibility for audio or video conferencing.

SpeechLine Digital Wireless

System: Installation, operation and adjustment are easier than those of any other microphone. Once the microphone has been configured, users do not require any audio know-how; it is already built-in. This enables speakers to focus entirely on their speech during meetings, lectures or presentations instead of

having to think about the microphone they are using. SpeechLine Digital Wireless has an Automatic Frequency Management



SpeechLine Digital Wireless System

feature that automatically searches for free frequencies on-site.

ADN Wired and Wireless: The ADN conference system creates the ideal environment for focused discussions. Press conference, panel discussion, plenary session.

The automatic frequency management of the wireless version ADN-W sets new standards, guaranteeing the greatest possible bandwidth for the available channels as well as a robust, fail-safe transmission. The ADN conference system is equipped with a most effective feedback suppression. It can be individually combined with microphones that ensure outstanding speech intelligibility—up to the legendary super cardioid microphone ME 36 for audio quality unheard of in this segment.

QSC ANNOUNCES ACQUISITION OF ATTERO TECH

EXPANDS Q-SYS ECOSYSTEM WITH BROAD PORTFOLIO OF ENDPOINT SOLUTIONS

QSC announced the acquisition of Attero Tech. This combines the rapidly growing portfolio of the Q-SYS audio, video and control (AV&C) Ecosystem with Attero Tech's highly innovative portfolio of networked AV endpoints and I/O peripherals, as well as boosting QSC's development capabilities with Attero Tech's Fort Wayne-based engineering staff joining the multi-national QSC team.

"This acquisition is a natural next step for our organizations given our long relationship, highly compatible portfolios and the exceptional shared values and com-



pany cooperation that have developed over the last several years," says **Jatan Shah**, Chief Operating and Technology Officer, QSC.

"A primary guiding principal of our Q-SYS product development strategy has been a protocol agnostic, software-based approach utilizing the best hardware

available, combined with innovation at the software and application layer," says **TJ Adams**, VP, Systems Product Strategy and Development, QSC. "Adding the Attero Tech peripherals to the greater Q-SYS Ecosystem will expand existing options for integration endpoints today, and enlist this new engineering talent pool to accelerate the pace of future software innovation and native end points for the platform."

Joe Pham, President and CEO, QSC, says, "This is such an exciting time for QSC and I am thrilled to welcome the Attero Tech team to the QSC family."

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GOVERNMENT OPENS BIDS FOR INTEGRATION AND INSTALLATION PROJECTS ACROSS INDIA

INSTALLATION FOR SOUTH INDIA PERFORMING ARTS MUSEUM OF TENDER VALUED AT RS 4.77 CRORES

ABOUT: Supply, Installation, Testing and Commissioning of Audio Video system at South India Performing Arts Museum in Kerala Kalamandalam, Thrissur.

TENDER VALUE: INR 4.77 Crore /-

EMD: INR 100000.00 /-

LOCATION: Kerala

To know more about the project:
<https://www.tenderdetail.com>

MEHASANA PROJECT FLOATS TENDER FOR HI-FI SOUND SYSTEM; INSTALLATION VALUED AT RS. 17.86 LAKHS

ABOUT: Providing Temporary Hi-Fi Sound System For Tanariri Function 2019 At Vadnagar Dist. Mehsana

TENDER VALUE: INR 17.86 Lakhs /-

EMD: INR 108000.00 /

LOCATION: Gujarat

To know more about the project:
<https://www.tenderdetail.com>

JAMMU AND KASHMIR PUBLIC WORKS DEPARTMENT'S AUDIO INSTALLATION PROJECT VALUED AT RS. 32.54 LAKHS

ABOUT: Supplying, Installation, Testing and Commissioning of Installation of Audio System in Conference Hall DC Office Complex Reasi.

TENDER VALUE: INR 32.54 Lakhs /-

EMD: INR 65073.00 /-

LOCATION: Jammu And Kashmir

To know more about the project:
<https://www.tenderdetail.com>

FORENSIC SCIENCE DEPARTMENT'S AV-TECH PROJECT TENDER VALUED AT RS 3.08 CRORE

ABOUT: Supply and Installation Of Instruments / Software / Hardware Tools Pertaining To I.Forensic Image Audio And Video Related Counterfeit Indian Currency Profiling Related.

TENDER VALUE: INR 3.08 Crore /-

EMD: INR 1.00 /-

LOCATION: Tamil Nadu

To know more about the project:
<http://www.tenders.tn.gov.in>

NATIONAL UNITY DAY AV SET-UP TENDER VALUED AT RS. 65.68 LAKHS

ABOUT: Providing Temp. E.I With Stand By Dg Set , Led Screen With Live Videography And Temporary Sound System For Hon. Prime Minister Program On "National Unity Day" At Kevadiya On 31St October,201.

TENDER VALUE: INR 65.68 Lakhs /-

EMD: INR 492610.00 /-

LOCATION: Gujarat

To find out more about the project:
<https://www.nprocure.com>

JAIPUR AMBER PALACE SOUND INSTALLATION TENDER VALUED AT RS 24.63 LAKHS

ABOUT: Supply Installation Testing And Commissioning Of Pa And Sound System At Amber Palace, Jaipur.

TENDER VALUE: INR 24.63 Lakhs /-

LOCATION: Jaipur

To know more about the project:
<http://sppp.rajasthan.gov.in/>

TAMIL NADU DEPARTMENT OF INFORMATION'S SOUND SYSTEM AND PROJECTOR INSTALLATION VALUED AT RS 16.86 LAKHS

ABOUT: Installation And Commissioning Of Sound Reinforce System Video Photographic And Projection Equipments.

TENDER VALUE: INR 16.86 Lakhs /-

EMD: INR 16860.00 /-

LOCATION: Tamil Nadu

To find out more about the project:
<http://www.tenders.tn.gov.in>

GUJRAT ROAD AND BUILDING DEPARTMENT'S AV PROJECT WORTH RS 12.53 LAKHS

ABOUT: Providing And Erecting Electrical Installation ,L.E.D. T.V. & Sound System For Vulnerable Witness Deposition Centre, D.L.S.A. & Video Court At District Court Building Botad.

TENDER VALUE: INR 12.53 Lakhs /-

EMD: INR 12600.00 /-

LOCATION: Gujarat

To find our more about the project:
<https://www.nprocure.com>

WEST BENGAL GANGA SAGAR MELA FLOATS TENDER FOR AV SET-UP VALUED AT 3.35 LAKHS

ABOUT: Making Decorative Lighting Arrangement And Providing Led Display Board Including Audio Visual System And Sound System At Kolkata Bus Stand (Otrarn Ghat) In Connection With Ganga Sagar Mela - 2020

TENDER VALUE: INR 3.35 Lakhs /-

EMD: INR 7513.00 /-

LOCATION: West Bengal

To know more about the project:
<https://www.tenderdetail.com>

UTTAR PRADESH SMALL INDUSTRIES CORPORATION'S SOUND SYSTEM TENDER VALUED AT RS 4.98 LAKHS

ABOUT: Partitions Sound system Projector with Screen and Glow Sign Board at Gmdic Ghaziabad up Partitions Sound system Projector With Screen Andglow Sign Board At Gmdic Ghaziabad Up

TENDER VALUE: INR 4.98 Lakhs /-

EMD: INR 5000.00 /-

LOCATION: Uttar Pradesh

To find our more about the project:
<https://etender.up.nic.in/nicgep/app>

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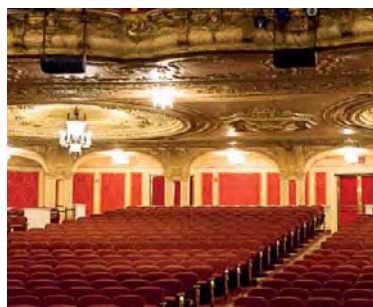
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