ELECTROSONIC world

Electronic Images • Video • Lighting
AV & Motion Picture control issue 11

Best Image Forward

Executive briefing rooms and multi-point video conferencing are placing new demands on display quality and capability. The demand is for higher image quality and multiple image sources.

Electrosonic are experts at engineering corporate display systems of any size. We show here the display system installed in the main presentation space at Infosys' Corporate Headquarters.

The display is a massive 8ft x 26ft 5in (2.4m x 8m) and is used for executive briefings, corporate presentations, main board meetings and video-conferencing. It operates under full room lighting.

For this project Electrosonic was contracted to ESCO, one of Asia's leading professional audio-visual companies. Electrosonic's Hong Kong office worked closely with the ESCO engineering staff to integrate the display into the overall system that ESCO had designed for Infosys.

The display is a 4 x 10 array of PVS000 projection cubes with Electrosonic VECTOR™ image processing. Sources include live video, videoconference feeds, high resolution computer images, videotape and DVD.

Infosys is a world leader in providing IT Consulting and software services. The company has five campuses located throughout India. 5,000 people work at the Bangalore site alone, where the new corporate HQ was opened in late 2000.

Launched in 1981 with a $250 investment, Infosys has grown into a global player. In 1999 it was the first Indian company to list on the USA Nasdaq. Most startling has been its growth rate which, since 1994, has been running at around 70% per annum compound.

Infosys' software and services are recognized as world class, and their new presentation facilities reinforce their market position.


The main presentation theater at Infosys' new Corporate HQ in Bangalore, India, seats up to 100 people. The high contrast display uses VECTOR™ image processing and operates in full room lighting. More pictures on Page 2.

3D HD at Corkscrew Hill

Busch Gardens at Williamsburg, VA, has opened a show that breaks new ground in High Definition 3D imagery.

Never before has full motion video been presented at a resolution of 1900 x 1280 in 3D on a screen as big as 44ft x 30ft (13.4m x 9.1m).

"Corkscrew Hill" is the lead attraction in the new Ireland "Country" at Busch Gardens. The show is written and directed by Jeff Kleiser and Diana Walczak. The projection and show control system was engineered by Electrosonic Systems (Burbank CA) and is based on their High Definition Server technology.

Read all about it on Page 16.

LIFE! Interactive World

"Electrosonic proved to be thoroughly professional from beginning to end. Ours is a complex, high-tech exhibition. Electrosonic has designed it superbly, so that it does all work at the touch of a button".

Linda Conlon, Director of LIFE Interactive World, the North East of England's newest visitor attraction, commenting on our contribution to the project, part of the £68 million International Centre for Life in Newcastle.

LIFE has two main theater shows, more than 30 computer interactive exhibits and many exhibits using video and audio replay.

In fact the designers of the exhibition were Event Communications. Our contribution was to engineer all the audio visual and computer interactive exhibits – a role that we fulfil for many museums and visitor centers.

See pages 12 – 16 for more stories on this application.


The "Secret of Life" show at LIFE can run as a fully automatic show, or as a show with two live actors. Audio visual production is by Media Projects International, and lighting design by DHA. The show runs from Electrosonic video servers and EASY™ show control. Display items include eight ES5050 slide projectors, Pioneer plasma screens, Barcodata projectors and Electrohome LCD cubes. Sound is from an Akai hard disc player locked to timecode from the video servers.

ELECTROSONIC world

Company News

These two pages report on company activities, new locations and expansion in our service division.

Editorial

Well, whatever your opinion about when the new Millennium started, at the beginning of year 2000, or more correctly at the beginning of 2001, it is now the case that we are well and truly in it. Does it feel any different? Yes, we think it does.

Year 2000 was the best in all our 37 years, and in the last couple of years we have done some of our best work ever. We have been privileged to work with leading professional designers and specifiers, and have participated in some excellent work. From helping to realize a magic entertainment way north of the Arctic Circle, to providing a state of the art display system for a briefing center in India; from supplying High Definition video displays all over the USA, to installing elegantly integrated inter-active exhibits at Somerset House in London.

And we have changed. While our heritage is a matter of pride, our business is of today. Since the last issue of ELECTROSONIC WORLD we have embraced more new technologies and have both streamlined and extended our organization. Our new products fit the networking environment, and with our VECTOR™ image processing and High Definition Server lines we are setting new standards of presentation. Our current research efforts will shortly bring new concepts to market, and our systems engineering groups continue to lead with application know-how. Our service operation has grown fourfold, and is an important business in its own right. Our aim to provide sales and engineering support near our customers has seen the opening of two new offices and the strengthening of our existing facilities.

We will surely change again. If we did not, we would be out of touch. The 21st Century is giving us new opportunities in the corporate market, but with these opportunities will come the need for fresh skills and new insights. With any change we will build on what is best in our culture – listening to our clients, being creative in our solutions, sticking with the project not only until sign-off, but also through its working life.

For us the "Millennium Dawn" is represented by new opportunities to excel. Maybe yours will be made brighter by letting us be members of your project team, as trade partners or as systems integrators – and also as friends.

Electrosonic World

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The VECTOR Direction

VECTOR™ is Electrosonic's family of electronic image processing products. Introduced in 1998 as a videowall processor system, the range has expanded so that it is now suitable for all kinds of single screen and multi-screen display, from plasma to LED.

The principle of a VECTOR system is that there are a number of input cards that can accept inputs from a wide variety of asynchronous image sources, without the need for any outboard processing (such as scan conversion). One or more output cards provide outputs to one or more display screens; the outputs being matched to the native resolution of the display. Any input image can appear at any size anywhere on the display screen(s).

Inputs can be analog or digital, and range in resolution from interlaced composite to High Definition video, and from VGA to SXGA graphics. Output displays can be from 15kHz composite video up to UXGA.

Director

VECTOR is the key to smooth multi-source image presentations that retain the highest image quality without switching glitches. It can be optimized to match the highest resolution projectors and graphic wall displays, or the comparatively low resolution of large LED screens. The benefits of VECTOR are now available to the regular corporate presentation market through the introduction of VECTOR Director™.

VECTOR Director consists of the compact version of the VECTOR card-cage, equipped for one high resolution and two standard resolution inputs, and for one or two outputs. It is optimized for use with single or twin screen boardroom systems. Most significantly it comes with the new PRESENTER™ software that is easy to configure, and allows full control from conventional room control systems (such as those from Crestron and Panja-AMX).

The VECTOR family is supported by continuous development to ensure that it can match the industry's progress in image sources and projection displays.

At INFOCOMM 2000 Pioneer set a record with a "video floor" made up of 135 50inch plasma display panels. The whole display was controlled by a large VECTOR system to provide both image splitting and dynamic multi-image effects. The latest version of C-THROUGH™ control software allowed the selection of the required underscan for tiled plasma, and avoided hours of custom set-up procedures.

Electrosonic demonstrated the power of VECTOR at a European Sales Meeting near Cologne, Germany, in June 2000. A single VECTOR unit accepted 11 image sources, including one from its own internal logo store. The sources ranged from PAL and NTSC, to HD and SXGA. One output fed a Digital Projection 15SX SXGA DLP™ projector, which was thus able to show up to nine simultaneous images. Other outputs fed two 2x2 graphics walls based on Sim2 52inch DLP™ cubes, and two 50 inch plasma display panels from Pioneer. The whole assembly was choreographed to run a fast moving show using C-THROUGH™ show control software.

The Presentation Theater at Infosys' HQ takes full advantage of VECTOR for executive briefings. For architectural, ambient light and design reasons this installation benefits from the use of videowall "cubes" as the display technique, but VECTOR is just as relevant when high power single projectors are used. Photos of the Infosys installation by Alec Wood.

The compact VECTOR card-cage used as the basis of the VECTOR Director package.

Pacific Rim Support

In order to provide support to customers and projects within the Pacific Rim timezone, Electrosonic has had a representative office in Hong Kong for a number of years.

Recently it has been responsible for the magnificent videowall display at the China Millennium Monument (see Page 5), for co-ordinating the system design consultancy at Cyber Express (see Page 8) and for the installation at Infosys shown above.

Currently we are planning to provide additional engineering resources at the Hong Kong office so that we can improve our support of large scale projects in the area.

The new Corporate HQ of Infosys in Bangalore, India.

Service with a smile

Testing new methods of image compression in the Hawley Mill laboratory.

R&D

Product development at Electrosonic consists principally of exploring the latest electronic techniques and applying them to our special fields of electronic image control and show control. It is also heavily dependent on computer software.

Most development work is carried out at Hawley Mill, our head office in the UK. However significant work is also done at our Burbank, CA facility. Hawley Mill specializes in image processing whereas Burbank specializes in High Definition server development and in large show control software (in particular ESCAN).

Our dedication to research is targeted at ensuring that we have a viable "road map" for future generations of our products, and at identifying technologies where we can add value. Work is currently concentrated on refining our patented image scaling algorithms, and on new methods of image compression that are resolution independent.

This High Definition video server card was developed in Burbank

The work on compression is using leading edge component technology. In order to allow the research project the greatest possible flexibility, the image processing is being designed around some of the most advanced chips available in the world today – one of them has 1,500,000 gates in the single chip.

This boardroom in Central London is typical of the many corporate customers who rely on Electrosonic's Service Division to support their presentation, videoconferencing and meeting facilities.

Over the last three years Electrosonic has increased its commitment to ensuring that customers' investments in AV systems are protected. This has been achieved by operating the service business as a separate unit and by ensuring that the service resource is near the customer.

The majority of Electrosonic's service business is based on maintenance contracts. In principle, major installations are completed and "run in" by the Systems Engineering Division. The Service Division then takes over, providing a level of service appropriate to the customer concerned.

This can vary from simple "on demand" service right through to staff resident on a customer site. Most sites opt for a high-level service that ensures attendance within a few hours and provides replacement back-up equipment if required.

The Corning Museum of Glass, Corning, NY, has its AV Systems maintained by Electrosonic.

The service is offered for both Electrosonic installations and for third party installations (subject to survey).

Nationwide

High service standards require tight control. Service contracts are only undertaken once we have the resources in place to support them. Special arrangements are made to support multi-site clients, and service technicians are located to be close to customer sites. The main service centers are in the UK and USA, but service engineers are also located in Germany and Hong Kong, and we work with our re-sellers to support other sites.

In the UK, sites supported are as diverse as the Stock Exchange, NikeTown London and Dewars World of Whisky. The UK operation also covers the Republic of Ireland; and here we co-operate with a local partner, where they provide the rapid response, and we provide the heavy back-up.

In the USA service is co-ordinated from Minneapolis, but its facilities are based nationwide. The largest single contract is the support of 165 High Definition Video Displays installed in Best Buy stores. Other major contracts supported are as far apart as the Field Museum in Chicago, First Union Center in Philadelphia, the Washington Pavilion at Sioux Falls, South Dakota and Nike stores in Boston, Denver, Los Angeles and Miami.

Best Buy has High Definition videowalls in 165 stores in the USA (for detailed information see story in ELECTROSONIC WORLD No 10). Electrosonic provides on-call service to all the stores.

The Imperial War Museum at Duxford, near Cambridge, UK, is supported by Electrosonic's Service Division. This is an example of Electrosonic providing contract service for a system supplied by a third party.

Video Server Products

New video servers from Electrosonic. Single channel SD server (above) and Four-channel server (below).

Electrosonic has been supplying video servers for several years, but only as part of complete systems or sub-systems. During 2001 the server family is being completely re-designed and presented as a set of stand-alone products.

Initial products are single channel and four channel SD (standard definition) servers complete with control software for most automatic play applications. Ultimately our HD servers will appear in a similar styling.

While many systems use an overall controller (e.g. an ESCAN computer) to control multiple servers, small systems can benefit from using the built in touch screen control panels featured in the new range.

Video programs are stored as MPEG-2 files. A server can store several hours of material, depending on the bit rate used. Typical SD rates are from 6-12 Mb/s and HD rates from 25Mb/s upwards.

The files can be loaded via an ethernet LAN. The single channel SD server can also have files loaded from CD-ROM, whereas the four channel server accepts both CD and DVD-ROM.

New USA Offices

The last issue of ELECTROSONIC WORLD coincided with the opening of our new office in Orlando FL. This issue reports that in late summer 2000 we opened another new office in Lawrenceville, NJ.

Both openings are consistent with our policy of getting our engineering and service resources near our customers. Orlando serves the entertainment and defense markets of the south east. Lawrenceville serves the corporate and design /consultancy markets of the north east.

The offices are equipped with fabrication and system test areas and are staffed by sales consultants, project managers and support staff. When large projects are involved, the resources of our Minneapolis and Burbank facilities are used to support the local effort.

The new Electrosonic office in Lawrenceville NJ.

Electrosonic a sponsor at the Mick Jagger Arts Centre

The Mick Jagger Arts Centre at Dartford Grammar School was opened by HRH the Duke of Kent on 30 March 2000 – but the huge press corps that attended had really come to see Mick Jagger. He was there with Jerry Hall, their children and his parents.

Mick Jagger was born in Dartford and attended the school. Dartford Grammar School has a policy of sharing facilities with the community, so when improvements were needed to their arts facilities, they had no hesitation in raising the profile of the project by enlisting the help of their most famous alumnus and of local business.

The Mick Jagger Centre consists of two fully equipped flexible performance spaces, rehearsal rooms, art gallery and a recording and video studio. It is used by the school, the town of Dartford and the North Kent Region; and it received considerable funding support from the National Lottery.

However, to get lottery support, projects of this kind have to demonstrate local commitment. Tony Smith, Head Teacher at the school, approached Electrosonic with the idea that we should support the Centre. We were pleased to be able to do so in a relevant way, by supplying equipment on special terms.

The bar and foyer area is animated by a large monitor videowall, run from Electrosonic IMAGESTAR™ processors. Shows for it can be made in the adjacent video studio and local artists are invited to contribute to the programming. In addition to engineering and supplying the videowall, we also supplied 112 channels of Helvar dimmers for the performance spaces.

The Mick Jagger Centre in Dartford (home of Electrosonic UK) is a new music and arts facility serving the needs of the local community. Electrosonic sponsored the foyer videowall which animates the space and provides a canvas for local artists.

Advances in Display Systems

On these pages we feature installations that take advantage of the latest developments in display and image control technology.

Keeping up with the technology

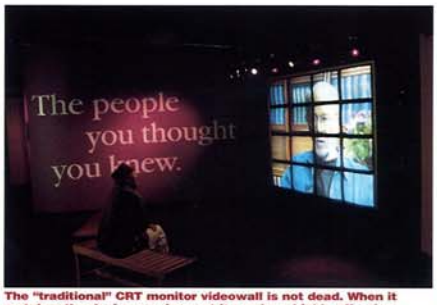
There is now an almost bewildering choice of display technology to choose from. But this choice is allowing us to match the requirements of a display project to the most suitable technology.

While we remain experts in videowall technique, we no longer make a distinction between videowalls and other means of achieving big electronic images - if LED or big single screen projectors are more appropriate, we say so.

Nonetheless, the video or graphics display wall remains a good barometer of technological progress.

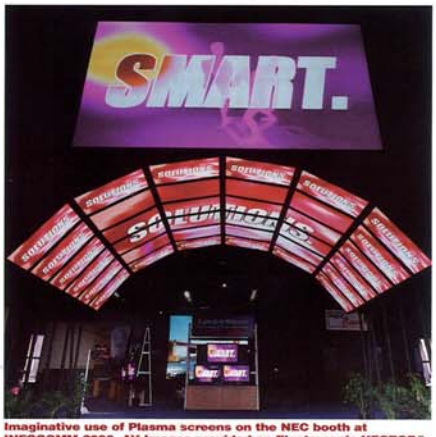
The traditional CRT monitor videowall is used where it suits the design or where an economical display is needed.

CRT based projection "cubes" still represent the cost effective basis of videowalls. They give excellent contrast and color reproduction. Until comparatively recently they were also the preferred basis of high resolution graphics displays (like the Jubilee Line example referred to here). However, the tendency to image burn, and the need to replace tubes after 12-20,000 hours has resulted in them being displaced by lamp based technologies.



The "traditional" CRT monitor videowall is not dead. When it matches the design requirement it can be a highly effective method of presentation. This recent installation is at the newly opened Madame Tussauds on 42nd Street in New York. This is a biographical arts exhibit sponsored by A&E. Installation was by Scharff Weisberg; they selected Electrosonic VECTOR™ image processing for its high quality.

The two principal competing technologies are Texas Instruments DLP™ (See SXGA DLP below, "Lightyear" Page 10, "Gallup" Page 16 for example) and Transmissive Poly-TFT LCD projection, as used by Clarity in their LCD cubes (See "Carl Vinson" and "GE Power" on Page 10). Both are ideal for the display of fine detail graphics - but they will soon be joined by reflective LCOS projection engines.



Imaginative use of Plasma screens on the NEC booth at INFOCOMM 2000. AV Images provided an Electrosonic VECTOR™ processor to split the images; it can automatically allow for the mullion between image sections.

Jubilee Line

Over five years ago Electrosonic delivered the overview display for the control room of London's Jubilee Line. The supply contract was through Alcatel and was for the display only. The display was of the highest practicable resolution at the time and uses NEC CRT projectors.

Currently we have a maintenance contract with Marconi Communications to support the display. The contract monitors tube life and manages a rolling re-tube program. To date two complete re-tube exercises have been completed without interruption to the 24 hours-a-day operation.

SXGA DLP

Mitsubishi has introduced "single chip" SXGA (1280 x 1024) projection cubes using Texas Instruments DLP™ technology. They are intended for the presentation of high resolution graphics.

At a recent international re-seller meeting at Hawley Mill we demonstrated these excellent displays in our atrium lobby. They were shown connected to a VECTOR Director™ system, and the combination elicited high praise from our professional visitors.

The "Dining room table" at the Hermitage rooms accommodates six of the eight interactive terminals that have direct access to St Petersburg. The screens fold down when the room is needed for evening receptions.

Digital Hermitage at Somerset House

The historic palace of Somerset House in London is the setting for an exhibition that makes excellent but restrained use of high technology display.

Within it, a newly restored suite of rooms recreates, in miniature, the imperial splendour of the Winter Palace in St Petersburg. It was inaugurated in November 2000 with a magnificent exhibition of "Treasures of Catherine the Great".

Jasper Jacob Associates (JJA) were the Exhibition Designers, co-ordinating work in the UK with that of craftsmen from St Petersburg to create the evocative setting. However, the Director of the Hermitage Development Trust, Geraldine Norman, was concerned that visitors to "The Hermitage Rooms at Somerset House" should have a sense of participation with the real Hermitage. This is achieved in three ways.

Live link

The most immediate is encountered at the entrance to the exhibition. A live video image of the exterior of the palace is presented on a Pioneer 40 inch plasma screen. The camera is sited on the opposite side of Palace Square, and is on an intermittent pan and zoom routine to vary the image.

Within the first gallery there are eight high resolution (18 inch SXGA, LCD) touch screens giving visitors access to the Hermitage website. Both the original St Petersburg site and the London installation are sponsored by IBM. The screens are incorporated in elegant furniture (from Benbow Interiors and Manners & Co) in such a way that they can be folded away when the room is required for receptions etc. The associated computers (IBM Netvista A40) are installed in a rack cabinet concealed behind a false wall.

Most use of the interactive displays is supported by a proxy cache server (IBM Netfinity™ 4500R) but, when necessary, there is direct access to the St Petersburg site. Access is via the same link that brings in the live picture, a 2Mb IP link provided by TeleRoss of Moscow (Golden Telecom Group). The link is sponsored by BSkyB.

High Definition

The third bit of "Hermitage Reality" is a beautiful film showing highlights of the interior of the Hermitage Museum. This was shot in Summer 2000 by an Anglo-Russian crew on 35mm, directed by Julia Cave and produced by Mosaic Films. The version shown at Somerset House runs as an endless 10 minute loop, and is shown as a High Definition video sequence from an Electrosonic HD server and a Digital Projection 5000GV DLP™ projector. Nothing less than HD would do justice to the detailed and colourful images shown.

The transfer of the film to HD was carried out in London. The 120 minutes of negative was first transferred to standard video. This enabled the film to be edited in the video domain, and created an edit decision list that was used to control the transfer of only the required clips to HD. The HD transfer was done at Cinesite Europe in Soho on their then newly installed Philips Spirit Datacine. Color correction and the addition of subtitles were carried out on the matching Specter compositor. Final output was as individual Targa 4:2:2 files, one for each frame – 113GB total! Final compression to High Definition MPEG-2 was carried out by Electrosonic.

An audio commentary can be heard through individual MP3 audio guides (supplied under separate contract by Antenna Audio). The Electrosonic show system issues a synchronizing signal at the start of each showing.

Electrosonic was appointed to design and build the audio-visual system. We were delighted to be involved with the project. It is a superb example of how high technology ought to be used. As a result of excellent exhibit design and wholly relevant content, the AV seems a natural part of the exhibition, and makes a valuable contribution to the experience of visiting The Hermitage Rooms.

A film of the interior of the Hermitage Museum is shown using High Definition video. The screen size was chosen to match the architectural detail of the rooms at Somerset House.

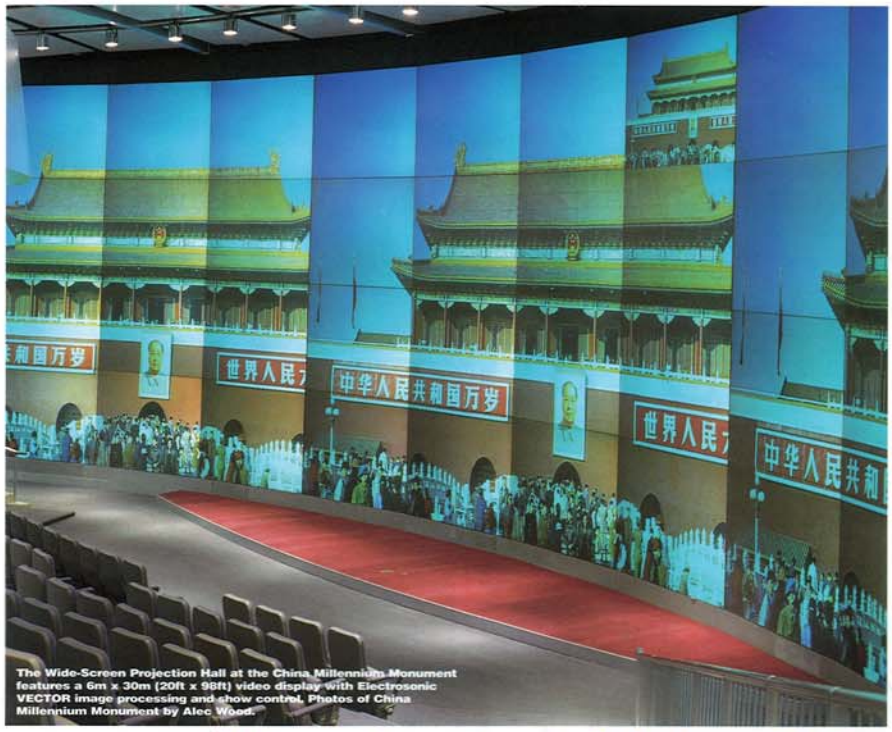
Great Wall of China

Electrosonic's tradition of creating giant high resolution electronic images continues with the completion of a 180 sq m (2000 sq ft) display in Beijing, China.

The China Millennium Monument in the capital Beijing is China's memorial building to the Year 2000. The Monument is a grand structure, occupying a total floor space of about 30,000 square meters. It ingeniously combines the spirit of traditional Chinese culture with modern architectural art.

It is intended to inspire patriotism and to serve as a center for cultural, artistic and scientific exhibitions, and was built by the Sponsoring Committee for the Construction of the China Millennium Monument.

The main structure of the Monument, standing 27 meters high and 81 meters in diameter, consists of a circular gallery and a revolving rotunda. Inside there is the central mural hall on the ground floor, and an exhibition of valuable art objects on the first floor.



The Wide-Screen Projection Hall at the China Millennium Monument features a 6m x 30m (20ft x 98ft) video display with Electrosonic VECTOR image processing and show control. Photos of China Millennium Monument by Alec Wood.

56 Screens

Underneath the main structure is the Century Wide-Screen Projection Hall, which houses an impressive projection videowall. This is 6 meters high and over 30 meters wide (20ft x 98ft), and consists of 56 110" screens in a 4 high by 14 wide array.

Measure Scientific of Beijing was responsible for the design and integration of the system that uses Sanyo PLC XF10 projectors and locally manufactured screens. It is controlled by an Electrosonic VECTOR™ image processing system, consisting of two card cages driven by a 16 x 16 switcher, and a show control system that also controls the image sources.

VECTOR was chosen because of its ability to display images of any type and size without any degradation of quality. Multiple sources are used, including Electrosonic Video Servers, DVD, Betacam and dedicated PC's.

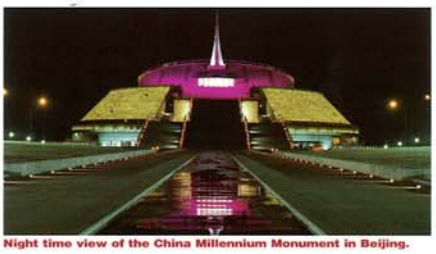
Measure Scientific contacted Electrosonic after they had visited Futuroscope in France and seen the 850 monitor videowall which had been installed there by Electrosonic.

Local support

They realized that, for a project of this size and complexity, a systems company with a track record in large-scale image display projects would be a valuable member of their team. Besides having the experience, Electrosonic could also provide local support.

The control system design and installation, carried out in conjunction with Measure Scientific, were handled from the Electrosonic office in Hong Kong, with support from other international Electrosonic offices.

The huge display is used for both education and entertainment, showing programs about Chinese culture and civilization and about rapidly developing science and technology. At early 2001 the display was showing a promotion for Beijing's bid for the 2008 Olympic Games, and was seen by members of the IOC.



Night time view of the China Millennium Monument in Beijing.

Southwark Cathedral

The recently opened visitor center at Southwark Cathedral in South East London gives an interesting example of how video projection is no longer bound by fixed projection distances.

LCD and DLP™ projectors can be fitted with lenses to cover a very wide range of projection distances and image offsets. At Southwark a horizontal 1.8m (6ft) diameter "bowl" screen shows a 360° image of the view from the top of the cathedral. The sequence is of 24 hours, but is speeded up to last only three minutes. AV production by Myriad. AV System installation by Electrosonic.

Illuminated Video Workshop

In this picture the LED screen has split into four. VECTOR ensures that images look right as the screen sections move. In another demonstration at Three Mills 32 separate LED screen modules were used.

Big Screen specialists Screenco gave the lighting and creative media worlds a unique preview of the kinetic future at a two-day "Illuminated Video Workshop" at Three Mills Island Studios in London.

The idea was to show how large LED video screens can be integrated in to live performance lighting, especially when the screens are rigged on motorized tracks and can introduce a new dimension to show animation.

The smooth integration of live camera feeds, pre-recorded material, computer graphics and other image sources is not a trivial matter, and becomes even more difficult if the "screen" suddenly starts breaking into sections or otherwise moves.

Electrosonic's VECTOR™ processor is ideal as a front end for this application. Not only does it eliminate the need for any outboard timebase correction and switching, but it also resizes images on the fly.

Each source can be shown anywhere on the "virtual" display to any magnification and to any priority. There also is no problem if different sections of the display are different sizes.

VECTOR

The Three Mills event used VECTOR as the pre-processor for the LED screens used on two different sets. Two leading show lighting designers, Vince Foster and Nick Jevons, designed completely different lighting and video screen arrangements for the two sets.

The whole event was a major team effort. While co-ordinated by Screenco, many other companies contributed. These included Vari-Lite Production Services, Stage One Creative Services, Aerial Camera Systems, Avolites, Creative Technology, Vertigo Rigging, SSE Hire and ShowSec.

LED video backdrop at the Illuminated Video Workshop. All images processed through VECTOR.

Corporate Promotion

Many companies that use visitor centers, mobile attractions and lobby displays take advantage of Electrosonic's products and system engineering skills.

Williams goes VECTOR

The main presentation surface at the Williams Executive Briefing Center is 3 x 12 array of Clarity LCD videowall cubes, with image processing by VECTOR.

Williams Communications of Tulsa, Oklahoma, has an Executive Briefing Center for state-of-the-art presentations and executive briefings. The main display system was recently upgraded to use a VECTOR™ processor.

The need for the upgrade arose because Encore Productions had been commissioned to produce a new introductory show for the EBC. It required the display of multiple video streams and some special effects, and Encore recommended VECTOR as the most suitable processor not only for the show, but also for the many other uses of the display.

The EBC is a 4,500 sq ft orb shaped room designed to maximize two visitor experiences; presentations and discussions. Dianne Shelton, Director of the Williams Alliance Development Group says "Targeted and potential customers visiting the facility have been excited and pleased to see our technology in use, and overwhelmed with the total experience we are able to provide". Her colleague, Rodney Thornton, Manager, Energy Solutions, adds "The EBC is the very best in the industry. I am very proud to bring people to the EBC, and have never been disappointed".

The EBC at the Williams Center seats 25 people in tiered seating, and features comprehensive effects lighting, audio, videoconferencing and interactive facilities.

Unilever Lobby

High resolution electronic images make excellent lobby displays. One company that demonstrates this is Unilever at their Indonesia Headquarters in Jakarta.

A fine Prodigital™ 2x2 DLP™ display is supported by VECTOR™ processing to give images of the highest quality. At installation the display was showing sequences on Indonesia and on the history of Unilever Advertising in the area.

ES is good for Guinness

Guinness Storehouse in Dublin is forecast to be one of Ireland's most popular visitor attractions with facilities for up to one million visitors a year. Electrosonic supplied a large automatic AV and lighting control system as part of the £30million development.

Guinness Storehouse is a 1904 listed building with 170,000 sq.ft. of floor space. It has taken over the role of Guinness' visitor center from the Guinness Hopstore that had reached capacity at 500,000 visitors a year. The new center includes training and conference facilities, restaurant and bar areas, and gallery and exhibition spaces. Its anchor is a world class visitor attraction called The Guinness Experience.

The Guinness Experience was designed by London based Imagination; it is a large scale walkthrough exhibition with 12 themed areas, all with a high AV content. It is notable for its extensive use of slide projection, achieving a significantly different image "look" to that of electronic image projection.

Guinness Storehouse was the first steel framed building in Ireland, it is now home to a world class visitor attraction.

EASY & ESLINX

The main exhibit areas at the Guinness Experience are each controlled by an Electrosonic ESLINX™ show controller, programmed using the EASY™ computer program. All the show controllers are, in turn, controlled by a Crestron touch-screen controller that provides automatic scheduling and manual over-ride control.

To assist the initial installation and to facilitate maintenance, each show area has a programming point connected to the central rack system. The programming point gives access to the show controller and to the lighting system and also includes intercom facilities.

The 80 slide projectors are ES (France)5050 RS232 controllable projectors with built in dissolve capability; main video projection is by Barco 6300 and NEC MT830 LCD projectors, and loudspeakers are a mixture of Bose, Tannoy and EAW. All video and accompanying audio is sourced from Electrosonic video servers. Audio equalization and overall master audio control is provided by BSS SoundWeb™ equipment.

Lighting control (including the control of exterior lighting) is by 216 channels of Helvar Ambience™ dimming. 144 of these use standard architectural scene control, and 72 are DMX controlled from a MIDI-cued Celco console.

The Arthur Guinness show at the Guinness Experience makes extensive use of slide projection, using ES5050 projectors.

Part of the Guinness Brewing exhibit.

Video projection in the Guinness Life show.

Corporate visitor centers are popular with the public. Guinness Storehouse is a model of its kind and looks set to be a great success.

Main show areas in The Guinness Experience

The Pint Show features five video images projected onto the outside of a giant pint glass

Ingredients has a huge waterfall and a heavy sound track with augmented bass

Arthur Guinness is based on slide projection and uses 44 slide projectors arranged as dissolve pairs

Brewing has two circular projected video images, slide projection and an extensive multi-channel sound system

Guinness Abroad uses 14 slide projectors and a large frosted glass screen

Transportation uses video shown on standard monitors

Cooperage has seven upended barrels, in each of which is a video monitor and loudspeaker. Programs started by presence sensors

Guinness Life uses 16 slide projectors and six small video projectors to tell six stories that sum up Guinness Life

Advertising features all the classic Guinness advertisements. Six touchscreen interactive computers provide access, a four monitor videowall in a kaleidoscope provides animation

Guinness @ Home features a projected video program shown inside a brewing kettle

Vorsprung durch HD

Riemer GmbH of Soest has recently completed a major AV installation at the new Audi Visitor Center at Ingolstadt in Germany. The installation includes a 3-screen High Definition video presentation that uses Electrosonic HD Servers.

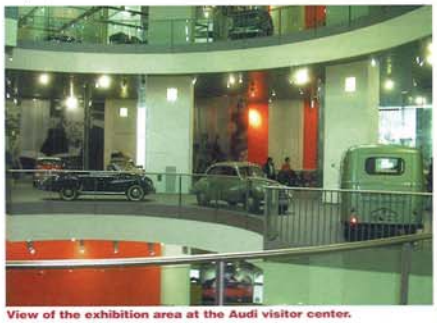
The visitor center is open to the public, but is also where proud owners of Audi cars can collect their new car. The exhibition covers aspects of Audi history, car production and new developments, and includes a high interactive content. Riemer GmbH is responsible for almost all the AV and computer interactive exhibits and based their system on networked computers with overall system control.

A major exhibit presents a 3-screen show within a circular auditorium. The overall screen size is 3.5m x 21m (11ft 6in x 69ft), made up by three screen sections each with 16:9 aspect ratio. Sharp XG V10 WE projectors are used, and these are sourced by

The playback rack contains four Electrosonic HD servers, one is a hot stand-by unit.

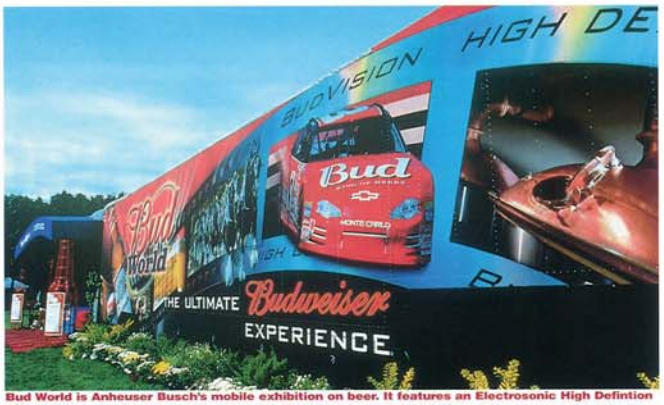
The Audi Visitor Center at Ingolstadt. Main audio visual installation is by Riemer GmbH.

three synchronized Electrosonic High Definition video servers. A special feature of these servers is that they provide an SMPTE timecode output, and this is used in the Audi installation for synchronizing a separate audio playback system.



View of the exhibition area at the Audi visitor center.

The High Definition show was produced by Velvet of Munich, and is called "Vision of Audi", a historical review of the company. Of special interest is that all the show compositing was done on Apple Mac computer. The original files treated the entire show on a single image basis, 6000 pixels wide. The process included the introduction of pincushion distortion to counter the effect of projecting on a cylindrical screen, and soft edge masking to produce a seamless picture. Velvet then produced three sets of individual frame files that Electrosonic compressed to the High Definition MPEG format.



Bud World is Anheuser Busch's mobile exhibition on beer. It features an Electrosonic High Definition Video system.

BudVision

"Bud World - The Ultimate Budweiser Experience" was launched in early 2000 as a mobile exhibit. In fact there are two of them, both based on two gigantic 53ft tractor-trailers and a 37ft trailer. When opened up, the exhibit occupies a 45ft x 105ft area on a 60ft x 120ft plot. The center of the attraction is the BudVision High Definition Theater.

Designed by Busch Creative Services, and realized by a team including Craftsmen Industries Inc (exhibit fabrication) Showmaker Productions Inc (show production) and Electrosonic Systems Inc (Audio visual engineering) Bud World offers three separate experiences, each of which can accommodate 40 people resulting in a capacity of 160 persons per hour.

The "World of Budweiser" pre-show is an exhibition area where visitors learn about the "King of Beers" through a collection of displays that include a brief video history of Anheuser-Busch and the Busch family's 137 year brewing heritage.

Centerpiece is the High Definition Theater, showing "BudVision" on a giant 18ft x 10ft screen. The 12 minute show offers a perspective on how Budweiser reaches daily life in a variety of unexpected ways. It is run from an Electrosonic HD Video Server and has Dolby* surround sound.

In the post-show, "Bud Brew House", visitors learn about the brewing process from an Anheuser-Busch brewmaster and, where legal, have the opportunity to taste a variety of Anheuser-Busch beers.

Electrosonic worked closely with Busch Creative Services on the project to provide a fully automatic show system. The High Definition film itself is spectacular and represents a first class example of how best to use the medium.

The "engine room" of Bud World is fitted with these Electrosonic equipment racks.

Video on the move

Adstruck TV of Burnsville, Minnesota, has launched an innovative concept in consumer advertising. The company runs a mobile advertising truck which tours the Twin Cities four nights a week, displaying its customers' advertisements. However, this is advertising with a difference – the Adstruck features three 60" x 80" videowalls, creating three mobile 100" diagonal full motion video billboards. The truck also has an outstanding sound system for audio support when parked at special events.

Adstruck TV faced the challenge of creating an "electronics friendly" environment within a moving truck. Electrosonic Systems of Minneapolis assisted with the design and was responsible for the videowall installation, which consists of twelve Pioneer RM-V2550 50" projection cubes. An Electrosonic ImageStar™ processor provides the video processing for the three 2 x 2 walls. The system uses a computer hard drive and an S-VHS deck for sources.

The Adstruck mobile electronic billboard uses Electrosonic IMAGESTAR™ processing.

Adstruck's standard route is four hours, offering each client 24 minutes of ad exposure each night. The route takes in all of the major shopping areas in the Twin Cities metro area as well as downtown Minneapolis and St. Paul. When a special event is taking place at any of the main shopping centers or sports arena, Adstruck diverts off the normal route to take advantage of the increased crowd exposure.

Craig B. Andrews, President of Adstruck TV said: "When we conceived this new venture, none of the company's principals were experienced in electronics. We needed experts who were willing to think 'outside the box'. We found just such an organization at Electrosonic. Through the entire process, from the sale and installation to follow-up service and support, Electrosonic went above and beyond our expectations."

The City Media Centre uses VECTOR to drive its backdrop images. It has become a familiar location for live broadcasts with a financial or economic basis.

City Media Centre

The London Stock Exchange opened the City Media Centre to provide broadcasters with a first class location in the heart of the City of London.

Whenever news of a financial or economic nature is broadcast, there is a need for a relevant background. The City Media Centre not only provides the right location, but also, by virtue of having access to all up-to-the minute financial data, the comprehensive information needed.

Electrosonic's VECTOR™ processor is at the heart of the visual display system that can be used in-shot by broadcasters working at the Centre. The system uses DLP™ projectors to provide rock steady pictures under high ambient light conditions. The VECTOR system allows the compositing of many different images to produce the background required for the particular broadcast. Most images are derived from on-line computer sources. No less than eight pairs of computers are used.

The Centre is intensively used. James Senior, City Media Centre Manager said shortly after its opening "We are delighted with the way the system is operating. On our busiest days we are fully capable of achieving as many as 40 live high quality broadcasts all in the same day".

"At Large" was the designer and Interior plc was the main contractor for the Centre. Apogee was responsible for the broadcast part of the system, and Electrosonic for the display. Mike Betts-Allen, Technical Manager at the Centre says "The system was installed by Electrosonic on time and on budget. It is working well and to our specifications. We are delighted with the way that Electrosonic has brought the system together. Their ISO 9001 procedures, which involve complete factory building of the system so that it can be accepted before it arrives on site, meant that the site installation time was kept to a minimum".

Retail Display

Electrosonic's systems expertise and image processing products are behind some exciting developments in retail display.

C21 Shopping at Cyber Express

The Electrosonic regional office in Hong Kong was contacted in the early months of 2000 to look at an exciting new concept for Dickson Cyber Express, a 21st Century cyber-shopping mall that was to be built in the new Kowloon Express MTR railway station for the Dickson group. Electrosonic teamed up with the Hong Kong office of architects Gensler and designers JGA Inc, who are based in Detroit, and who were already working on the concept, to provide the design consultancy for the audiovisual, lighting, IT and control systems for all the displays planned on the site.

Entrance to Fashion World at Dickson Cyber Express.

Cyber Express is a unique retail environment, with conventional shops supported by Internet and Intranet terminals that extend the retail experience to 24 hours a day and allow customers to browse for goods when they wish.

Electrosonic had the task of working with the creative team and putting together three packages for tender, for the IT and audio-visual hardware and for the infra-structure. However, the initial designs had to be completed in just five weeks from appointment! To achieve this, a team of engineers was set up in the UK to work with their colleagues in Hong Kong.

"Dress me up" interactive display.

Electrosonic designed a combined fiber-optic and CAT5 based media distribution and control architecture, with three separate networks for data, video and audio. All this with central control and flexibility to allow changes in the position of displays and terminals in the future – retail outlets often move or change goods. Also, as the Cybermall is a public space under the control of the MTR railway company, account had to be taken of MTR's regulations, including maintaining high ambient lighting conditions.

The system includes a small production and play-out studio, augmented by a DV based ENG system, to allow the network to show locally produced material for product launches, special events etc.

The installation of the audio-visual systems was completed by Light Sound Image Systems of Hong Kong and the installation of the IT systems was carried out by Hong Kong Telecom. The Cybermall successfully opened for business, creating a wave of interest in the retail world.

Touchscreens allow children to create their own images.

Media Projects

Media Projects International of London were appointed by Dickson as the Media consultants and software producers to Cyber Express. They created interactive and video programs for the eight zones in the mall; Entertainment World, E-World, Fashion World, Kiddy World, iCosmetic World, Sports World, Exploration World and Cyber Sea. Their aim was to enrich the retail experience. It ranged from providing dynamic attraction video programs presented on plasma screens, to practical interactives to preview clothing and cosmetics, to the pure fun of Cyberquarium in Kiddy World where shoppers build their own fish and feed it.

High-Tech at The Mills

Electrosonic Systems Inc has been a video systems integrator for The Mills Corporation for over 12 years. In that time we have supplied major video systems for 11 of Mills' distinctive shopping, dining and entertainment destinations.

The Mills regards video as an essential component in maximizing the time that customers spend in their venues. Display screens throughout a Mills destination show high quality video and graphic information. The emphasis is on promoting activities within the site, both in terms of entertainment and specialty shopping. Corporate and national sponsors also get a chance to promote their brands.

The practical difficulties of providing such installations include optimizing the video distribution in mile-long malls, keeping the displays light-weight, and providing automated playout of the material. Technologies have advanced considerably over the years of Electrosonic's involvement with The Mills.

"Mills TV" is distributed throughout a Mills destination, and is shown on custom built rear projection displays using LCD projectors. This installation is at Arundel Mills, Hanover, Maryland.

In a separate project from the main Arundel Mills TV installation, local Toyota distributor Central Atlantic commissioned display specialists George P Johnson (GPJ) to create a "mini motor show" featuring Toyota cars. Both entrances to the display area have a 3x4 array of PV8000 53inch video cubes in a high impact videowall. The display is sourced from Electrosonic video servers, one High Definition and one Standard Definition, and is processed and controlled by VECTOR™ and C-THROUGH™. Installation of the videowall system was by Custom Engineering of Troy, MI under sub-contract to GPJ.

Early systems were tape based, and made extensive use of conventional CRT monitors and cable distribution. In the most recent installations, such as those at Opry Mills, Nashville TN, and Arundel Mills, Hanover MD, all signal distribution is by fiber-optic. Playout is from video server (DOREMI at Opry, Pinnacle Thunder at Arundel) and scheduling is by Electrosonic ESCAN™. A typical day's program uses 700-800 control cues.

Most display is now by custom built flown rear projection displays using LCD projectors. The ESCAN system controls power to the projectors and can monitor lamp life – so projector lamp changes can be scheduled prior to lamp failure.

Eye-catching video value

The CRT monitor represents excellent value as the basis of eye-catching displays in retail.

With the right program material, monitor based videowalls can help animate retail spaces and provide valuable customer information.

The three examples shown here all use Electrosonic IMAGEMAG™ or IMAGESTAR™ videowall processors to achieve high image quality and dynamic effects.

This SportMaxx store in the shopping mall at Regensdorf (Switzerland) makes excellent use of videowall as an attractor. Photo from AV Ganz AG.

Currys' largest UK store at Junction 9 on the M6 uses a 5x5 videowall to promote the latest consumer digital products. The display is sourced from DVD, VHS and Satellite.

At Sainsbury's store in London Colney (UK) a videowall is used to relay live cookery demonstrations from their chef Stuart Ramsden.

Broadcast and Events

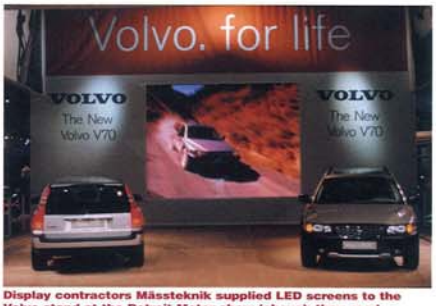
Electrosonic image processing technology is finding fresh applications with the arrival of new display systems.

LED takes over

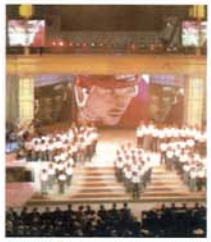
Large screen LED video displays have taken over some of the applications of the cube based videowall, but they have also created some completely new applications.

VECTOR™ is best known as a high resolution image processor, so it may come as a bit of a surprise to find that it is also the best pre-processor for the comparatively low resolution LED video display.

We have invested considerable resources in developing new filter algorithms for VECTOR that make it the LED pre-processor of choice not only because of its unrivalled image re-sizing and multi-source capabilities, but also because it gives an extremely sharp picture.



Display contractors Mässteknik supplied LED screens to the Volvo stand at the Detroit Motor show (above); they used VECTOR processing equipment supplied through our re-seller Centas AB. MVI provided a 16ft x 12ft LED display, and two 4x4 and two 2x2 cube videowalls for the annual NHL awards in Toronto, Canada (below). In this case image processing was by Electrosonic PICBLOC-3 and IMAGESTAR.



Screenco are leaders in the use of LED screens for events. They provided a huge display for Eurythmic's "Peacetour" shows (above) and another one for BBC Studio TC1 and the Television Sports Personality of the Year 2000 (right). Both used Electrosonic's VECTOR processor to facilitate multi-source operation and to optimize image resizing.

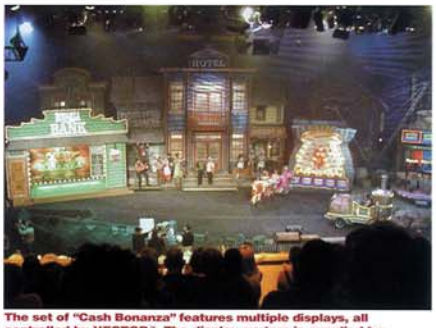
LED displays suit architectural applications, as can be seen here where a Pixelite (now Lighthouse) display is installed on the corner of the building housing "Home" in London's Leicester Square. The display is used for previewing events at the club and for showing electronic art. VECTOR processing simplifies the difficult image re-sizing task.

Cash Bonanza in Oz

Electrosonic equipment is behind the scenes in many TV Game Shows, and one of the latest examples can be seen weekly in Australia.

"Cash Bonanza", recorded at Movieworld on the Gold Coast, runs Australia wide on the 9 Network. It involves four games of chance with 15 contestants flown in from all over Australia. The climax pits the studio champion against a home viewer playing to win $100,000.

The show is recorded with a live studio audience, and the impressive set is built round three display elements; a 3 high x 5 wide videowall using Electrosonic PVS000 cubes, a 1x3 array of Pioneer 50 inch cubes, and a row of five Zend 27 inch monitors. The entire display system is run from a VECTOR™ image processing system genlocked to the studio sync.



The set of "Cash Bonanza" features multiple displays, all controlled by VECTOR™. The display system is supplied by Electrosonic Systems Australia

Electrosonic Systems Australia worked for 12 months with the show producers, Grundy TV, and their advisers TV FX, to develop the display system. VECTOR was chosen for three main reasons; its outstanding image quality, its ability to present rock-steady still images, and its accompanying C-THROUGH™ control program.

For Cash Bonanza, TV FX and Electrosonic Systems developed over 60 effects sequences that are stored in the C-THROUGH control computer. These are called as required by the progress of the game by the TV FX game control computer. The extensive use of image freezes gives the impression that the display has many image sources.

EXPO Fun 2000

G+B Medientechnik GmbH (subsidiary of Gahrens & Battermann) of Bergisch Gladbach supplied a massive 360° projection system for the FUN 2000 attraction at Hanover's EXPO 2000. It used 16 Sony VPL-PX20 projectors, back projecting onto eight rear projection screens, each 12m wide (39ft) and 4.5m high (15ft), to give 16 6m (19ft 6") x 4.5m (15ft) images. Sources included 8 DVD players, video camera and videotape. Image processing, to re-size and/or "split" images, by Electrosonic VECTOR™.

MVI in Canada

A new force in rental and staging opened early in 2000 in Toronto, Canada. Actually it is not so new because it is a management buy-out from our old Canadian subsidiary, Multivision Electrosonic Ltd.

This company was the only one in the main group offering a staging service. We felt that it would succeed best under its own local management and ownership, and were delighted when Peter Penkala and his team took on the business (now renamed MVI).

They have introduced VECTOR™ processing for some of their key events, including the GM supplier of the year awards in Munich, the GM Chairman's Awards in Detroit and the North American Tour of Medical Trade Shows. The pictures here are of the Munich event where the VECTOR system sourced a mixture of LCD video cubes and plasma screens.

Electrosonic in Australia

There has been a change of ownership in Electrosonic's representation in Australia.

From November 2000, Electrosonic has been represented by B&H Australia, a long established AV company with branches throughout Australia.

B & H took over the representation when Evans Deakin, owners of Gilbert Lodge, decided to sell some of their distribution businesses. However, continuity was assured by the fact that key staff associated with Electrosonic all transferred to the new ownership.

Electrosonic Systems Australia is a division within B&H that specializes in AV Systems Engineering and in representing Electrosonic's image control products. It operates out of B&H's Melbourne, Sydney and Brisbane offices. The Electrosonic trademark is used with the permission of Electrosonic Ltd. Apart from representing Electrosonic Ltd, and reselling their products, there is no financial connection between Electrosonic Systems Australia and Electrosonic Ltd.

ELECTROSONIC world

Control, Decision & Conference Rooms

Electrosonic's technology is used in many decision and conference spaces.

VECTOR on USS Carl Vinson

The Space and Naval Warfare (SPAWAR) Systems Center in Charleston, South Carolina has chosen a combination of Electrosonic VECTOR image processing and Clarity Wildcat LCD cubes for important applications of color large screen display on board ship.

A modern fighting ship relies on electronic information, and may have 100 or more sources of electronic images. While generally these can be viewed on individual displays, there is a real problem when an overview is required. In such a case an officer group may need to view several sources simultaneously, with changing priority.

SPAWAR

The SPAWAR Center at Charleston is set up to design, build, test, install and support the finest frontline command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR for short) systems used today or planned for the future. They have been investigating the display problem as it applies to Operations Rooms, and have determined a number of priorities.

They need systems that are modular and easy to maintain. Simple things that don't matter on shore loom large at sea; such as lack of space and the need for equipment to pass through ship's access-ways without dismantling. It goes without saying that the highest practicable resolution is required, to deal with every kind of source from video surveillance cameras to high resolution graphics. Non-standard images (such as rasterized radar images) are also needed.

COMMANDER

A critical requirement is that any kind of image can be displayed at any size on demand, without any need to adjust the display. Electrosonic's VECTOR™ processor in conjunction with specially developed CT COMMANDER™ software meets this requirement. This auto-detects all sources and makes glitch-free transitions between them, regardless of changes in image parameters, such as scanning frequency and frame rate.

USS Carl Vinson is the first US Navy ship to benefit from SPAWAR's new large screen display design, based on the use of a 2x4 array of Clarity LCD cubes (giving an overall image size of 48in x 128in and a displayed resolution of 3200 x 1200 pixels).

CT COMMANDER is an extended version of the new PRESENTER™ software. Users can set up any required screen "scene" and its associated sources, and subsequently select the required display "scenes" by touch screen. A scene might, for example, include two major background images and three or four smaller windowed images, all selected from a library of 50 or more possible image sources. CT COMMANDER has built-in password security to prevent unauthorized adjustment of scenes and, in the version supplied to SPAWAR, some other special features.

Electrosonic's Orlando office has worked closely with Clarity Inc and SPAWAR Charleston to ensure that the user requirements are met. The aim is to deliver systems for which SPAWAR can provide all the front line support. This is being achieved by comprehensive training and by close liaison between SPAWAR and Electrosonic development staff.

Navy personnel being trained in the use of CT COMMANDER display control software on the USS Carl Vinson. Photos courtesy of SPAWAR Charleston.

GE Power

GE Power in Atlanta, GA, are using a 2x5 array of Clarity 50" LCD cubes with VECTOR™ processing as their display to monitor their power stations and other plants around the country. Any combination of four computer data inputs and three video inputs can be displayed in any position on the display. The display is also used for client presentations.

Photo Steve Hornaday, Heery International.

Berlin Wall

An excellent example of the use of VECTOR image processing in a meeting room. Although a videowall is being used here for space reasons, the application would be just as valid if a single large screen projector was used. Photo of the German Finance Ministry meeting room in Berlin from Burkhard Barz.

A meeting room at the Bundesfinanzministerium in Berlin is equipped with a high brightness multi-source display with VECTOR™ image processing.

The lack of available depth and the need for a high resolution display that could be used in full room lighting led to the choice of a videowall as the display. Nine Pioneer RM-V 5000VE projection cubes are used to achieve a 3m x 2.25m (10ft x 7ft 6in) image.

The VECTOR processor is equipped to accept a wide range of inputs. These include an off-air tuner, an S-VHS player and computer data up to 1280 x 1024 resolution. Individual images can occupy the whole display, or multiple images (pictures in picture) can be shown.

Two different kinds of live images can be presented. A PictureTel Concorde Videoconference system allows for full remote video conferencing. In addition, images of the current conference speaker within the room can be shown automatically, thanks to the Philips DCN conference system. When a microphone is selected the automatic video cameras select the image of the speaker.

Control of the display and source system is by an AMX touchscreen controller. The original technical installation was by Wegert-AV. However, continuing service support to the site is now provided by tsm Studiotechnik of Berlin.

Lightyear Network

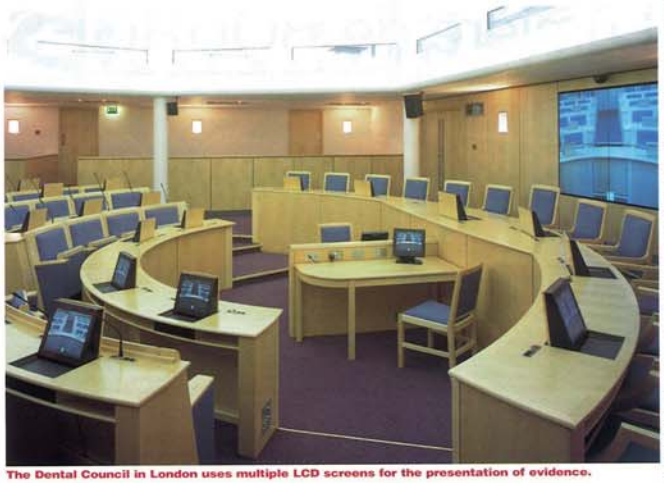
The Lightyear National Operations Center.

"In addition to its functionality, we consider our NOC at the Lightyear Technology Center to be an impressive 'showpiece' where we can bring potential customers. At the center of that 'showpiece' is Electrosonic. Their service and support are top-notch, and I would recommend them to anyone with similar needs."

Kind words from Randy Thurman, Systems Engineer at Lightyear Communications, one of America's fastest growing integrated communications service providers. Lightyear designs flexible communications solutions that combine data, Internet and voice services; and the Lightyear Technology Center in Louisville, Kentucky is the hub of the newest, most advanced Edge ATM Network in the world.

This facility houses Lightyear's Network Operations Center (NOC), which accommodates all traffic bound for dedicated web servers, shared web services, the public voice network and internet; and their Engineering Lab which supports product development and testing.

The NOC is command central for the company, giving highly trained technical support staff instant access to customer lines. Lightyear turned to Electrosonic technology to display the data their support staff need. Twelve 40" Electrosonic ProDigital™ DLP cubes show up-to-the-minute information with a VECTOR™ Image Processor managing the incoming sources and displayed images. Three video sources are used for surveillance, the weather channel and DVD/video; and four graphic sources are used to display and monitor the network status.



The Dental Council in London uses multiple LCD screens for the presentation of evidence.

Electronic evidence at the Dental Council

The Dental Council in London has completely remodelled its Council Chamber. It now includes the latest conference and visual display techniques. For disciplinary proceedings the chamber operates as a court of law, and in today's world video and computer based evidence must be clearly visible to all participants.

The design of the Council Chamber is by Bryant Harvey, Architects, and Electrosonic worked with them to ensure that the required audio-visual facilities were both effective and unobtrusive.

When used for council meetings the chamber needs full participatory conference and voting facilities. These are provide by a Brähler microphone management and voting system. For council meetings and proceedings video and computer graphic images must be visible to all. For reasons of space, and to allow a high ambient lighting level, the main image presentation medium is a 2x2 videowall using Toshiba cubes and Electrosonic Imagestar Graphics processing. While this is quite sufficient for normal video material, for displaying voting results, and for the installed PictureTel videoconferencing system, it is not suitable for the close examination of documentary or photographic evidence.

For this reason, for every two seats there is a 15 inch LCD display that repeats the image shown on the main screen. This allows delegates to examine electronic images and documents closely; and, when not required, the LCD screens fold down to leave the normal flush desk surface. The complete Council Chamber system is operated like a special purpose conference room, and uses a Crestron control system.

College at Sea

"The equipment has proven to be a major enhancement to the crew areas for training, the sound and picture quality really enforces the training video presentation, and is so easy to use". Comments from Kevin Dunn, personnel manager Queen Elizabeth 2.

"College at Sea" is a new concept of the Cunard/Seabourn fleet. Crew additional to the normal complement commence familiarization training at sea prior to being assigned to a ship within the fleet. To facilitate this, the QE 2 has a training room and crew library fitted with the latest in presentation technology.

Electrosonic installed the two systems that both use plasma screens to achieve the largest practicable image in the smallest possible space, and both allow for TV/VCR, visualizer and PC inputs. In addition the library system has a DVD source.

The crew training room on the QE 2.

Electrosonic engineers many board room and training room systems, for installation on land or at sea! At the time of the publication of this issue of ELECTROSONIC WORLD the Hawley Mill factory had racks on the shop floor destined for over 45 conference rooms of different kinds. A good indication of our capacity to manage a large number of installations simultaneously.

The crew library is used for both training and for leisure purposes.

Quest Vector BT

The New Auditorium at British Telecom in Newgate Street, London features a 2m x 4.4m (6ft 6in x 14ft 3in) curved screen served by a sophisticated projection system installed by Quest Technical Systems. VECTOR™ image processing is used to allow the flexible positioning and sizing of multiple images on the screen.

BT's auditorium at Newgate Street features big screen electronic images with VECTOR image processing.

The screen is served by two Barco Reality 6500 projectors with soft edge blending to produce one large image, in the first installation of this configuration anywhere. Projected resolution is approximately 2240 x 1024, and there is provision for two high resolution images and two video/data images to be shown on the screen simultaneously. Any incoming image can be selected to be any size up to full screen.

Electrosonic's VECTOR processor is used to do image re-sizing and positioning, and to ensure glitch-free transitions. It is preceded by a switcher that allows selection from various sources including multiple SXGA graphics, Betacam, DVD, broadcast cameras, SVHS and an SDI vision mixer.

Multi-source

The VECTOR system that is installed is modular and has room for expansion. This means that if BT want to add more display surfaces (for example on-stage plasma screens) or additional inputs for more simultaneous images, they can do so at any time.

The auditorium, part of BT's marketing operation, was designed by Aukett Associates as architects, and Mark Johnson Consultants as Audio-Visual consultants. Quest Technical Systems Ltd was the systems integrator for the project. The auditorium is used for both internal and external presentations, and is also available for use by selected customers.

The control room at Newgate Street. Installation by Quest Technical Systems.

Holiday Boardroom

Thomson Holidays is one of many companies using a boardroom control system engineered and installed by Electrosonic.

Their newest boardroom is part of a "three in one" space, and here the control system is not only used for conventional room control, control of video sources etc. but also for the control of the moveable partitions.

One interesting feature of the long and narrow space is that, when it is fully opened up the main screen is too small for proper legibility.

The problem is solved by having an extra projector, on a motorized ceiling lift, and a motorized drop-down screen to provide a repeat image for those at the back of the room.

Themed attractions

Electrosonic designs and builds the control systems for many themed attractions round the world.

ESCAN in the Smoky Mountains

Exterior view of Ripley's Aquarium in the Smoky Mountains.

"Electrosonic is a great company. They did all the engineering, design and installation for the Ripley's Myrtle Beach Aquarium; and we knew they had all the facilities and technical capabilities to complete a job of this size and scope."

So said Bob Kirchgessner, Senior Project Manager for Ripley's, on the completion of their second aquarium in Gatlinburg, TN.

The Smoky Mountains have always been known for their wildlife – black bears, bald eagles and red wolves – to name but a few. With the opening of Ripley's Aquarium, Smoky Mountain visitors are able to see sharks, moray eels and stingrays as well! The $45 million, 100,000 square foot marine attraction is home to thousands of fish and other kinds of aquatic life from around the world. Electrosonic was contracted to design, supply and install a large, easy to operate, integrated audio-visual system for the Aquarium.

To control and monitor the whole facility, Electrosonic installed ESCAN™ (Electrosonic Control Area Network). A server running Electrosonic ESCAN software has overall control of the AV system, and handles scheduling of start of day and end of day events, to bring the aquarium on line or shutdown cleanly without the need for an operator. ESCAN exercises control over each individual piece of source equipment allowing complete flexibility. To provide operations staff with a unified control interface, ESCAN is configured to allow preset audio "scenes" to be recalled. These allow the audio levels to suit differing occupancy levels. In addition ESCAN constantly monitors the AV system for any problems that require maintenance.

The System

The Electrosonic system is based on three major equipment rooms, handling a total of 29 exhibit areas, two multimedia classrooms, and a number of other multifunction rooms.

The audio system is designed around Peavey Media Matrix technology, using a single 760NT Media Matrix with a combination of BOB and CAB units. The BOB units allow analog signals in the main equipment room to be converted to digital form for processing by the Media Matrix. The CAB units are used to connect audio from remote locations within the building; they carry out a similar conversion from analog to digital, but in addition allow the digital signals to be routed over a 100base T Ethernet network using "Cobranet" from Peak Audio.

The aquarium engineer can monitor all the systems and equipment from a Control Room Observation Area. The Control Room itself is also designed as an exhibit.

Most exhibits use Pioneer 7400DVD players for the audio and video sources. The video signals are fed via patchfields to monitors and display devices in the exhibit areas, whereas the audio signals are fed to the Media Matrix for processing, before being fed to the amplifiers. A number of the exhibits require the audio to loop seamlessly, and in these locations Electrosonic ESTA™ units provide high quality playback of audio data stored on PCMCIA memory cards.

Live sound

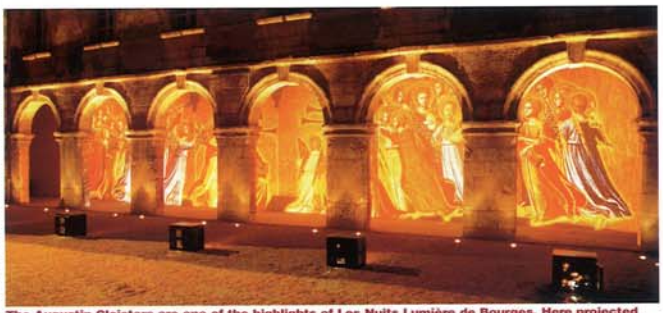
In addition to their normal exhibit mode, a number of the larger areas are used for live performances (for example, involving a diver in the tank feeding the fish), with the show hosted by one of the operations staff, using a Shure UC1420 wireless microphone system. The system design allows both modes of operation to be handled effectively using the same speakers and amplifiers. Host speech is through a Shure UC1240 wireless microphone system augmented by a Sabine GRQ-3101S unit to provide feedback suppression and compression.

The video system uses Sony monitors for the smaller exhibits and a combination of Pioneer PDP-V501X plasma screens and RM-V2550U 50" projection cubes for the larger areas. The classrooms and changeable display areas use Sharp XG-NV5XB and Barco 6300 projectors.

The whole project represents an excellent application of ESCAN, which is now being used to control the operation of systems in many themed attractions, museums, corporate presentation systems and retail display systems.

The main user interface for day-to-day operation is very simple and is presented on a touch screen.

Lumière de BOURGES



The Augustin Cloisters are one of the highlights of Les Nuits Lumière de Bourges. Here projected images of angels are part of the show controlled by Electrosonic EASY. Audio and control signals are carried on 4-channel CD players from Electrosonic France.

An outstanding sound and light show runs in the French town of Bourges during the summer months. Show control is by the Electrosonic EASY™ program.

Bourges is right in the middle of France, 230 km south of Paris. It has a beautiful town centre with many attractive buildings of great historical interest, spanning the 4th to the 18th Century.

A conventional Son et Lumière show has the audience in one place, and sometimes it is difficult for the producers to find enough story material to keep the audience's interest for a long time. Bourges gets round this problem by having a multi-site show.

The audience see the 90 minute spectacular on foot, and stroll about 2km during the show, being guided by a blue line of light. At each of six main buildings or sites (such as the Cathedral and the Rampart Wall) they see and hear a show with dramatic lighting and projected images.

The show was designed by Philippe Noir and Christine de Vichet. Lighting design by Pierre Boudeau and Vladimir Lyszczynski, sound by Daniel Deshays and images by Serge Fouillet. Main technical contractor was AEB, with Cyclope providing the large format filmstrip projectors. Electrosonic France was responsible for overall show control and slide projection.

At each of the undersea exhibits, there are distinctive audio effects, produced by Hammer Media, ranging from the extraordinary sounds of the poisonous Arrow Frog to the soothing sounds of the Reefs. Some areas have live performances, as shown here.

Chemidrom at EXPO 2000

Artists impression of the exterior of the Chemidrom ride.

An enormous tube, 250m (820ft) long and raised 2.5m (8ft) above floor level provided a futuristic ride in the Chemidrom feature of the Human Being theme pavilion at EXPO 2000 in Hanover, Germany.

Visitors experienced an 8½ minute journey with the theme "Life is Chemistry". The ride passed through several stations, the most spectacular of which was the "Theater of Achievements". Here multi-media specialist Fernando Toma (of Toma Multivision of Cologne) presented a massive mixed media show using a combination of ES5050 projectors from Electrosonic France, video and effects projection.

Show control was by Electrosonic ESLINX™ equipment and the EASY™ computer program, which Fernando Toma considers ideal for permanent installation without the need for an operator.

Theater of Achievements at Chemidrom.

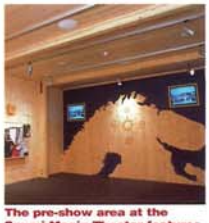
View of the ride in action.

Storytellers to the world

"Animation Celebration" at Universal Studios, Osaka, Japan uses BRC Imagination Arts' Holavision® system to intrigue and mystify the audience.

Electrosonic has been privileged to work with BRC Imagination Arts for many years. In this article we report on four new attractions in Texas, Virginia, Norway and Japan designed and produced by BRC with show control by Electrosonic.

Storytelling is what sets BRC Imagination Arts apart. Every attraction they design starts with a story. Bob Rogers, Chairman and founder of BRC, speaks in terms of combining "showmanship, scholarship and magic", and it is this combination that is the hallmark of their work.



The pre-show area at the Sapmi Magic Theater features short video programs, music and historic and contemporary photos.

In ELECTROSONIC WORLD No 8, we reported on the BRC production of "Mystery Lodge" at Knotts Berry Farm that used their patented Holavision® process. Now the technique is being used at Universal Studios' park in Osaka, Japan in a new attraction "Animation Celebration". In it the Holavision® technique allows Woody Woodpecker to escape from his animated cartoon world and enter the real world -wreaking havoc live on stage in an animation studio.

The behind-the-scenes show control system from Electrosonic uses the latest technology, but, as we have previously quoted Bob Rogers: "We need the technology to be invisible. Lots of places wear their technology on the outside. Like a magician, we use the art of misdirection to convince the audience there's no technology, just magic".

HD in Texas

The Bob Bullock Texas State History Museum in Austin, Texas is a brand new educational institution that takes visitors through the exciting story of Texas in a variety of program and exhibit experiences.

The Texas Spirit Theater, located on the second floor of the museum, is a 200 seat venue with three screens, high definition imagery, fixed sets, flying scenery, and several thrilling special effects. The theater's main show 'The Star of Destiny', produced by BRC, takes the audience on an epic journey through the history of Texas. Sam Houston narrates the historical story that begins with the Native American Indians and ends with Neal Armstrong's first steps on the moon.

"Trial by Fire" is the signature attraction at The National Museum of the Civil War Soldier in Pamplin Historical Park. A three-projector seamless video panorama is integrated into BRC's set design.

Digital Projection

A Digital Projection Lightning 10SX DLP® projector and two sets of double-stacked Sanyo PLC-XF10NZ project onto the three screens. The screens are actually theatrical gauzes (or "scrims") that allow the reveal of three-dimensional sets and scenic drops during the show. The high definition projected images come from three synchronized Electrosonic HD Servers.

During the show, the Electrosonic ESCAN™ control system operates air effects fitted in each of the 200 seats, and fires a storm effect where fans, fog and water sprays recreate the destructive Galveston Storm. ESCAN also communicates high-level show commands to a Rosco Horizon lighting playback controller and a theatrical flying system that brings in scenery, projection screens, and theatrical curtains throughout the production.

Audio

Electrosonic also supplied a 32-channel, state-of-the-art audio system, including an Akai DR-16pro to provide 16 channels of digital playback for the main show. A Peavey Media Matrix® DSP audio processor digitally processes and distributes the audio sources to over 75 loudspeakers and 200 seat transducers located throughout the theater. Needless to say, the theater rocks.

Like no other theater in the world, The Texas Spirit Theater seamlessly integrates the latest in projection, audio and control, to tell an educational story that will bring guests back again for more.

Norway

BRC Imagination Arts were all over the place in 2000. Their most remote site was the "Sapmi Magic Theater", a state-of-the-art visitor center and theater located in Karasjok, Norway, near the northernmost tip of Europe. As with all the BRC installations described on this page, the automatic show engineering and control is by Electrosonic Systems Inc. of Burbank CA.

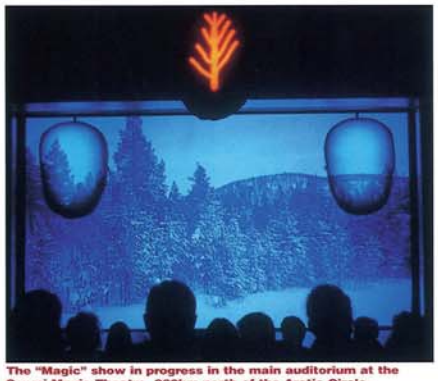
The cultural center uses high-tech wizardry and special effects to celebrate the long history of the region's Sami people, one of the few indigenous peoples of Europe. Dating back to 325 BC, the Sami have amassed a unique history, language, identity, culture and way of life.

The 340 square meter (3,660 sq ft) facility includes a pre-show area where visitors are surrounded by historic and contemporary photographs, music and video espousing the rich Sami tradition. Next, the Center's main theater plunges visitors into the heart and magic of the Sami people, their evolution, pristine life and native soil, and how they are being affected by the modernization of the planet. BRC's "magic" utilizes an advanced combination of simultaneous front and back projection systems, including the best in digital effects technologies, together with a fog projection screen, unique fiber optic effects, and a "fly away screen wall."

An Electrosonic Video Server drives the video projectors, with an Akai16 channel digital audio machine providing sound for the main theater. The show is controlled by a computer running Electrosonic EASY™ software, and may be run in any one of eight different languages.

Bob Rogers, founder and chairman of BRC Imagination Arts stated: "BRC is proud and honored to have been selected to create this extraordinary project. The Sami people are trusting us with their most precious possession: their cultural heritage. That's a big responsibility."

Previously most of the area's visitors came in the summer. With the added attraction of the "Sapmi Magic Theater," tourist levels in both summer and winter have increased.



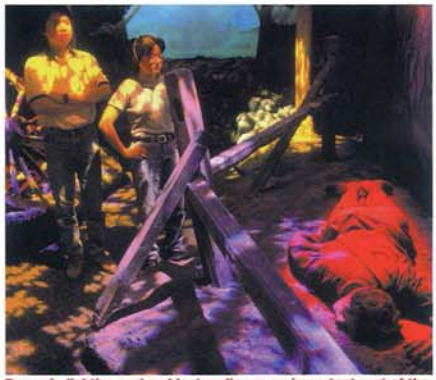
The "Magic" show in progress in the main auditorium at the Sapmi Magic Theatre, 360km north of the Arctic Circle.

The "Spirit of Texas" historical spectacular at the Texas State History Museum, Austin, TX. Photo © BRC Imagination Arts.

Virginia

BRC work within the resources of the project. At the National Museum of the Civil War Soldier near Petersburg, VA, they have achieved impressive results on a limited budget. "Trial by Fire" immerses the visitor in the sights, sounds and feel of battle. The attraction impresses not only the public, but also BRC's peers in the business – it won a THEA award (Themed Entertainment Association) for its effectiveness in both entertaining and educating.

Electrosonic supplied a single compact equipment rack to control the audio, video, lighting and special effects throughout the exhibition. A 6-channel video server provides all the video and ambient audio sources. The show control system is based on Electrosonic's EASY™ software, which controls the video to a three-projector seamless panorama, other video screens, floor rumbling effects to simulate artillery fire, compressed air jets to simulate bullets whizzing by the visitors' heads, and synchronized DMX lighting control.



Dynamic lighting and ambient audio are an important part of the mix at "Trial by Fire" near Petersburg,VA.

ELECTROSONIC world

Museums and Visitor Centers

Many museums and visitor centers take advantage of Electrosonic's system engineering and project management capabilities – many others use our special products.

The Millennium Machine at the Museum of Tolerance is an audience interactive show.

Interactivity

Interactive exhibits are deservedly popular in museums and visitor centers, but the challenge to the designer is to specify exhibits that give an experience that is significantly different than that of the computer game at home.

In practice this is achieved in three ways. At the individual level it is done by creating exhibits that are relevant to the subject at hand, and that precisely match the exhibit environment. They must be intuitive, have a fast response time, and a short cycle time. We install hundreds of such exhibits a year, and have developed techniques that allow both creative flexibility and engineering integrity.

The trackball and button combination represents the most robust user interface for computer interactive exhibits. This one is at LIFE, Newcastle (see story on Page 1).

For most large scale exhibits we install only the display, audio transducer and visitor input device at the exhibit, and locate the computers remotely. Simple CAT-5 cable is all that is needed to connect the exhibit to the computer. Maintenance is simplified and reliability greatly increased by this method.

Small group

More difficult is creating good interactive exhibits that work for small groups. The problem is not only devising an exhibit that is exciting, but also one that is reliable and not subject to visitor damage. One of the best recent examples of the successful implementation of this kind of exhibit is that of the Play Zone at the Millennium Dome. A brief description of this installation is given below.

The success of this display was largely due to Land Design who took care to ensure that all the exhibits could be enjoyed just as much by an audience as by the actual participants.

Land Design were the designers of the Play Zone at London's Millennium Dome. This zone was extremely popular with visitors and gained a lot of positive press. It featured fifteen separate interactive exhibits suitable for group enjoyment, written by software writers from all over the world. Computer platforms were a mixture of NT, Mac and SGI. Electrosonic co-ordinated the technical installation and provided overall exhibit control.

SENSATION is a new Science Center in Dundee, Scotland. Creative design and project management were by Haley Sharpe, and audio-visual integration by Electrosonic. In this case the use of touch-screens was favored, here being enjoyed by some very young scientists.

Large group

Large group interactive displays are the most difficult of all. They usually require some supervision, and do require that the visitors are willing and able to devote some time to the "show".

In ELECTROSONIC WORLD No 9 we reported on the "Point of View Diner" at the Museum of Tolerance in Los Angeles. This has proved such a success that the museum has introduced another audience interactive "The Millennium Machine".

Like "Diner", this was designed by 3D Concepts of London (Creative Director Richard Houghton) with film production by Scott Goldstein productions.

The setting is a futuristic "time machine". An opening sequence is shown on 17 monitors and projectors with surround sound, with images through world history to today. The time machine stops and with the phrase "The time is now" invites visitors to take an ethical position on global issues.

Visitors sit in groups of six at consoles and are invited to vote on the issues arising from video essays presented on a big screen.

Complete engineering of the show system is by Electrosonic (Burbank office). It is based on an Electrosonic 12-channel video server with ESCAN™ show and voting control.

High Definition

Advances in projection technology and production techniques mean that High Definition video is now a cost effective option for all big picture presentations in museums and visitor centers.

At Electrosonic we have developed a High Definition video server specifically for this application. Its comprehensive specification and sensible pricing is gaining it wide acceptance. We believe that designers should now think in terms of all moving electronic images 50 inches or bigger being HD in order to ensure visitors see a quality far superior to images they can see at home.

We describe here a few recent installations.

Kentucky

Visitors to the Kentucky Derby Museum get a unique perspective of the Derby, thanks to the Museum's 360-degree, high-definition theater.

'The Greatest Race', a 14 minute multi-screen presentation is the climax of a visit to the Kentucky Derby Museum in Louisville, USA.

'The Greatest Race' opened in April 2000, as part of the Museum's recent renovation. Presented every half-hour on 216 linear feet of front-projection screen surface configured as the racetrack oval, it is believed to be the first 360-degree, high definition video installation in the world. The project was produced and directed by Donna Lawrence Productions, with system design and integration by Communications Electronic Design (CED), both based in Louisville.
It uses nine Electrosonic HD servers running in sync, and NEC 4500 lumen DLP™ projectors showing letterboxed 10ft x 24ft (3m x 7.3m) images.

Terra Mitica

Terra Mitica is a new theme park in Spain. Global Estudios were the consultants and master planners.

The Ancient Greece zone of the park includes two simulator theaters. A team consisting of Ride Trade of Liechtenstein, Ex Machina of Paris and Electrosonic realized the "Spirit of Olympia" show.

Each Electrosonic show system includes an HD video server and TWO of the new JVC D-ILA 4000 lumen projectors on a 10m screen. Photos (courtesy of Ride Trade) show the exterior of Olympia attraction and Ride Trade's Maxi Motion seats.

American Museum of Natural History

The Rose Center for Earth and Space at the American Museum of Natural History opened in early 2000. Within it the Cullman Hall of the Universe is an exhibit area, designed by Ralph Appelbaum Associates.

A feature of the hall is the Astro-Bulletin, shown above. This shows computer generated images that are converted to HD video for playback, and run from an Electrosonic HD server. The display is in the form of a 4high x 5wide DLP cube videowall suitable for use in the high ambient light. VECTOR™ image processing is used.

The lower photo shows more of the exhibit area, including video "wells" that visitors look into. The complete AV system included 48 channels of Electrosonic video server and 13 touch screen interactive displays.

Platte River

The Great Platte River Archway Monument in Kearney, Nebraska features 20,000 sq. ft. of exhibit space with a new exhibition designed by Christopher Chadbourne and Associates, and built by Design Craftsmen Inc. The film producers and co-concept and content designers for the exhibition were Dennis Earl Moore Productions Inc.

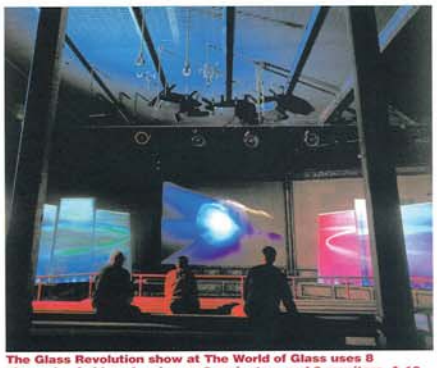
The largest image used is the one shown here. It is a "living painting" designed to attract people in to the back of the wagon. The image is 19ft 6" high by 25ft 8" wide (5.9m x 7.8m) and is presented on a rear projection screen (Stewart) using a Digital Projection DPL10K projector. The film was specially shot by Dennis Earl Moore on 35mm; it was then transferred to High Definition Video, and it is shown using an Electrosonic High Definition video server.

Glass Works

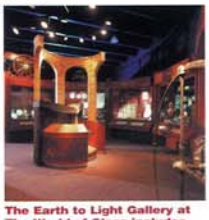
Two towns, one on either side of the Atlantic, are associated with glass. Corning, NY, the home of the Corning Glass Company and St. Helens, Lancs, England, home of Pilkington.

Both have newly opened or renovated museum/visitor centers.

The Corning Glass Museum was opened in 1951, to celebrate the centenary of the company. The museum is now an independent educational trust, and over the last few years has been undergoing comprehensive regeneration, with exhibition design by Ralph Appelbaum Associates (RAA).



The Glass Revolution show at The World of Glass uses 8 channels of video showing on 6 projectors and 6 monitors. A 13 channel surround sound system is based on a Fostex D160 hard disc player. Photo IDEAS.



The Earth to Light Gallery at The World of Glass includes several audio-visual sequences. Overhead parabolic loudspeakers are used to confine sound to a small listening area. Photo IDEAS.

Pilkington has also had a museum for many years, part of which housed the famous Pilkington Collection. This collection has been relocated in a new building, and restyled as "The World of Glass". (Also now an independent operation). Here the exhibit design is by IDEAS of the Northcross Group.

Both sites feature historic collections of glass and live demonstrations of glass working techniques. Both use audio-visual techniques to help with the interpretation of exhibits; and both have audio visual systems engineered by Electrosonic.

This kind of center requires systems that work fully automatically, but that also allow some degree of flexibility in operation to cope with different visitor flow patterns and the needs of live demonstrations.

At Corning we have installed an Electrosonic ESCAN™ system for overall exhibit control, augmented by an AMX/Panja user interface for their orientation theater. At the World of Glass control is by Electrosonic ESLINX™ programmed by EASY™ software.

Both systems use Electrosonic Video Servers as prime video source; 20 channels at St. Helens and no less than 72 channels at Corning.

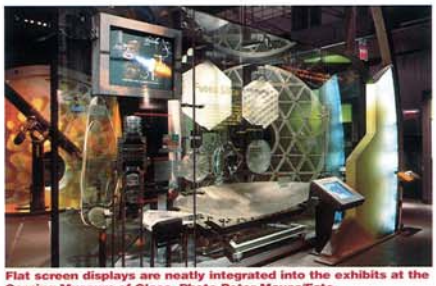
The Glass Revolution is one of the highlights of The World of Glass, using multi-channel video and audio synchronized to lighting and special effects. The lighting and effects sub-system is by Stage One.

At The World of Glass all interactive displays have remote computers, linked to their display by CAT-5 cable. Photo IDEAS.

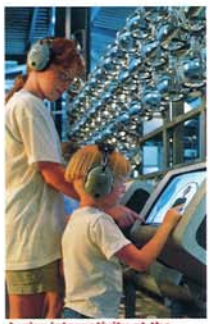
An important exhibit at Corning is devoted to the subject of fiber optics. As an illustration of their communication power there is a demonstration that allows the selection of any 24 channels from 6 live video camera signals and 24 video server channels to be RF multiplexed down one fiber.

This unusual square videowall (based on a 4 high, 3 wide array of Pioneer engined cubes) receives 24 separate video sources from a single optical fiber. Photo Peter Mauss/Esto.

At the other end of the fiber the RF signals are demultiplexed, demodulated and fed to a 24 input VECTOR™ image processing system, before being shown on a square videowall. All 24 images can be shown simultaneously at different sizes if required.



Flat screen displays are neatly integrated into the exhibits at the Corning Museum of Glass. Photo Peter Mauss/Esto.



Junior interactivity at the Corning Museum of Glass. Photo Scott Frances/Esto.

Glass is a fascinating subject, and an important element of human civilization. The World of Glass and The Corning Glass Museum are outstanding places to visit for both enlightenment and entertainment on everything to do with glass.

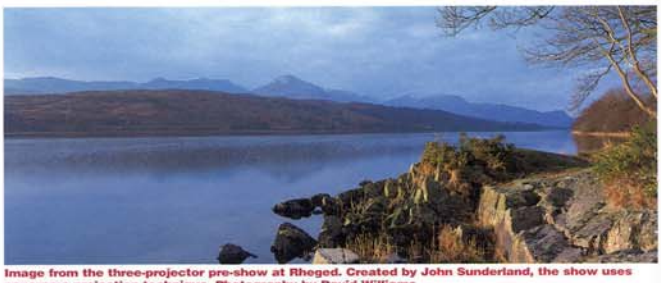


Image from the three-projector pre-show at Rheged. Created by John Sunderland, the show uses panorama projection technique. Photography by David Williams.

Panoramic Images

Many visitor attractions use audio-visual presentations as "pre-shows" to a main attraction. Rheged, the Upland Kingdom Discovery Centre in Cumbria, and Wildfowl and Wetlands Trust's (WWT) new center in Barnes are two recent examples from England.

Rheged is Europe's largest grass covered building. Built in to old quarry workings, it is sculpted to have minimum visual impact on the surrounding countryside. Its feature attraction is a dramatic large format film "Rheged -The Lost Kingdom" presented on a 48ft x 60ft screen.

John Sunderland was entrusted with the design of both the pre and post show areas. The pre-show is presented on a 2.5m x 10m (8ft x 33ft) screen and shows a day in the life of Cumbria through the eyes of local people. It is shown by an Electrosonic show system based on a 3-channel video server and Sony projectors with soft-edge image blending.

At the Wildfowl and Wetlands Trust, Barnes, Media Projects International created a three screen show. In this case the screens are deliberately separate. Note the side screens have a square format.

Media Projects International was responsible for the orientation show at the new WWT center at Barnes, built on the protected site of a former Victorian reservoir. Prior to entering the stunning observation room, visitors see a 15 minute three screen show in an 80 seat auditorium. Again an Electrosonic show system, this time with NEC projectors.

Millennium Seedbank

The Millennium Seedbank is in the Wellcome Trust Millennium Building at Wakehurst, Sussex, England. Electrosonic engineered the AV system which is tightly integrated into the exhibit design, by Land Design Studio.

The Millennium Seedbank, a sanctuary for the world's seeds, was opened by HRH The Prince of Wales on 20 November 2000.

The project is an international collaboration, headed by the Royal Botanic Gardens, Kew, and is one of the largest international conservation projects ever undertaken. Its aim is to safeguard over 24,000 worldwide plant species against extinction, and also secure the future of the UK's native flowering plants.

The Seedbank Exhibition is located in the Wellcome Trust Millennium Building at Wakehurst Place. It shows visitors why the Seedbank project is necessary, and explains how the Wakehurst botanists will identify and collect millions of seeds from all round the world, before storing them in the vast underground vaults.

Land Design Studio designed the exhibition, which makes retrained use of audio-visual techniques to assist with interpretation.

Display techniques include plasma screens, touch screen LCD screens, lightboxes and turntable animation. Use is also made of Polymer Dispersed Liquid Crystal (PDLC) film for revealing exhibits. PDLC, in this case supplied as Polyvision film from G.A. Stanley Palmer, is translucent in its normal state, but if an electric field is applied across it, it becoms transparent.

Electrosonic was responsible for the audio-visual design, systems engineering and installation throughout the exhibition.

Interactive displays at the Seedbank overlook the seed processing and research laboratories.

Late News

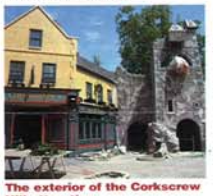
This page features some recent installations.

Corkscrew Hill

Busch Gardens, Williamsburg VA is themed as different "countries", and the newest to open is Ireland. Within it is an exciting fantasy ride that uses the latest projection technology.

After a series of adventures visitors find themselves strapped into a small box. The pictures to the right and on the front page show the audience being "found" as the lid of the box is opened. There follows an exciting sequence including a ride on the magical griffin Archibald and nearly ending up as ingredients in the witch Old Moll's soup.

The main show is presented as a stereoscopic ("3D") image, using dual projection and polarized images (with glasses) and the audience ride on a huge 59 seat motion base with six degrees of freedom.



The exterior of the Corkscrew Hill attraction.

The attraction is constructed in an existing building and this imposed some severe constraints. In order to fill the audience's field of view a screen 44ft wide and 30ft high (13.4m x 9.1m) was needed, and to fit in the building a projection distance of only 24ft (7.3m) was available.

In order to achieve sufficient image brightness and resolution it was necessary to use two projectors to cover the screen area (then doubled up for 3D). Each projector is mounted on its side to project a portrait format image 1024 pixels wide, 1280 high. The side by side images overlap by a small amount to give a nett displayed resolution of 1280 high x 1900 wide. Total light output from the projectors is 48,000 lumens! (But, of course, this gets severely attenuated by the polarizing filters).

Screen image from Corkscrew Hill © Busch Entertainment Corporation, reproduced by permission Busch Gardens Williamsburg and courtesy Kleiser-Walczak productions.

In order to achieve subjectively even illumination from all seats it was necessary to ensure that the projectors were sited as close together as possible. This arises from the use of the "silver" screen surface necessary to retain polarization, and results in the need for lenses that permit a big image shift.

The principle is shown in the diagram below. The show is run from FOUR Electrosonic HD video servers running in frame sync. The servers include the facility to provide soft edge blending of images, and this has been specially tuned to match the needs of the Corkscrew Hill attraction. The servers output serial digital, so Corkscrew Hill represents one of the first ever attractions to use an all digital production/presentation chain. One server generates timecode for the audio system which uses a multi-track hard disc drive as source.

Underneath one of the huge 59 seat motion bases.

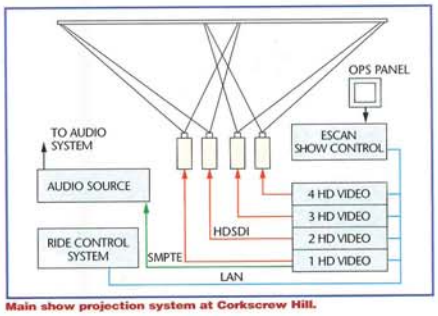
To provide sufficient throughput for busy days, the whole installation is duplicated. Each main show has its own pre-show, and prior to this there is a common pre-pre-show. All the pre-show installations are also 3D high definition presentations, but on comparatively small screens (typically 9ft x 12ft).

Electrosonic engineered the entire audio-video presentation system, working closely with Busch Gardens' project director, Larry Giles, the show producers Kleiser-Walczak Productions, the ride manufacturers CAE USA Systems (formerly Reflectone) and other contractors.

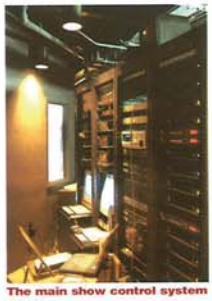
Corkscrew Facts

(each main show system, two systems installed)

Image source	Electrosonic HD video server (x4)
Projector	Barco ELM12 with HD serial digital input (x4)
Projector technology	DLP™
Lens	0.8 Custom built by Coastal Optical (x4)
Custom projector mount	Chris Teuber Design
Screen	Stewart 3D silver, perforated
Audio source	Fostex D824 hard disc playback unit
Audio control	BSS Soundweb (x2)
Audio processing	JBL DSC260 (x4)
Audio channels	L,C,R, RS, LS, LRS, RRS plus sub-bass
Amplifiers	QSC CX series
Loudspeakers	JBL VS 3115 for L&R, JBL VS3215-9 for C JBL SP212A for surrounds, JBL SP128S for sub bass
Main show control	Electrosonic ESCAN
User interface	Panja AXD-CG10
Motion base and base control	Reflectone (CAE-USA)



Main show projection system at Corkscrew Hill.



The main show control system room.

Magnificent MAGNA

Magna, a science adventure attraction, opened its doors to much acclaim and tens of thousands of visitors at Easter 2001.

Sited in what was once Europe's largest steelworks, the Templeborough mills at Rotherham, England, Magna consists of six exhibition areas. Four of these are devoted to the original "elements" (and basis of steel production) Earth, Air, Fire and Water.

An introductory show "The Face of Steel" takes advantage of the huge cathedral-like space; and a sound and light spectacular "The Big Melt" recreates the days of steel making on the site.

The exhibition was designed by Event Communications. Stephen Feber, Magna's Chief Executive says "Magna was an unusual project, a big building that would contain a bigger idea. Event, with architects Wilkinson Eyre, have responded superbly to the series of intellectual, emotional and design challenges I have thrown at them. The result is superb."

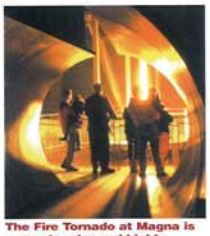
Electrosonic was responsible for the design and building of the comprehensive audio visual and show control systems; working with the creative team that included Event, Centrescreen Productions, Elbow Productions, Atacama, Spiers & Major and DHA Lighting Design.

There are five separate control rooms that each control an exhibition area.

The Water Cycle section of the Water Pavilion at Magna

They are networked together for overall supervision.

Equipment supplied included 34 LCD projectors, 40 channels of video from Electrosonic video servers, ESLINX™ show control, Crestron user interface, Electrosonic ESTA™ and Fostex digital audio sources, 14 computer interactive displays and 132 channels of Helvar Ambience dimmers.



The Fire Tornado at Magna is a spectacular and highly popular exhibit.

The "Face of Steel" takes advantage of the huge space of the steelworks. Synchronized multi screen video using Barco 6300 and NEC MT840 projectors linked to huge scenic projection using Pani projectors and PIGI scrollers.

Gallup presents

The Gallup Organization's world headquarters is in a renovated historic building that once hosted an inaugural ball in Lincoln's administration. The Great Hall within the building is now a splendid corporate presentation room.

Such conversions can present problems. The ambient light level is too high for front projected images.

Gallup appointed AV Washington as their audio-visual design and build consulting company, and they in turn recommended the use of a videowall, not only to solve the image brightness problem, but also to allow the use of multiple sources including high resolution graphics, DVD, camera, and off-air images.

AV Washington recommended the use of a custom built Electrosonic videowall, based on 67inch DLP™ cubes and VECTOR™ image processing. The installed system is a 3x4 array of cubes to give the HDTV 16:9 aspect ratio.

The Great Hall at the Gallup Organization's Washington Headquarters.

Frank Russell, Gallup's AV Services Director says "Everyone – clients, presenters, employees – is overwhelmed by the videowall and the entire multimedia experience. It's very impressive".

The Hall is used for multimedia sales presentations, management training and internal presentations. The ability to have four sources on line, and easily manipulate the position and size of graphic images, text and video through the VECTOR system has proved particularly useful.