

# Building the worldwide reputation for JCB

Vincent Rice's look at JCB's Presentation Theatre. This award-winning development marks the first of a regular series looking at how technology is used within a specific project.

“A sixteen week job on a twelve week schedule” was Feltech sales director, Nevil Bounds' opening salvo. Said more in pride than complaint no doubt; sitting in the calm and quiet confines of JCB's unique VIP theatre it was hard to imagine the superhuman efforts that must have been expended in the final days to bring this project home.

Quite why timelines became so squeezed after nearly three years of discussions between JCB and Feltech one suspects we'll never know, but the parameters were clear: a complete rip-out and overhaul of the theatre's sound, lighting and video presentation facilities in time for a five-yearly global sales conference when the world would descend on JCB's Staffordshire headquarters for six weeks.

There was a time when any self-respecting corporation would have its own film crew and editing facilities but these days outsourcing of such services is the norm. Not so for privately owned JCB, third largest excavator manufacturer in the world and a British manufacturing icon.

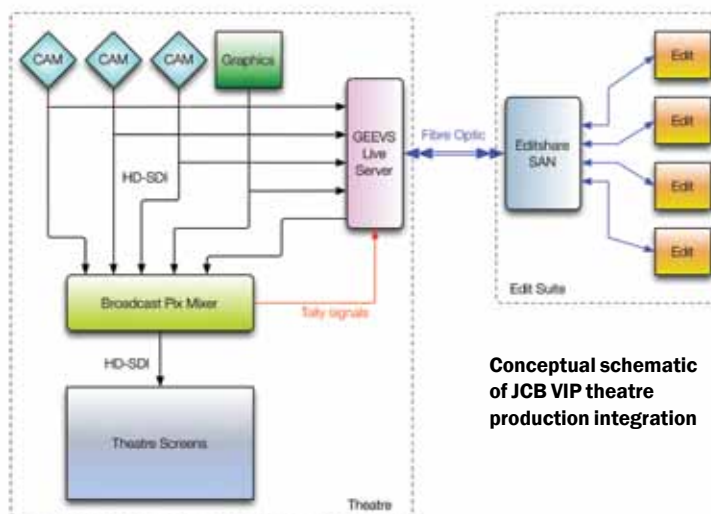
Ever since founder Joseph Cyril Bamford could afford a 16mm movie camera the company has been producing corporate and sales packages at a prodigious rate and the company is rightly remembered for a string of innovative marketing films that show off the company's products in an unusual manner.

Those of us of a certain age will always remember the original JCB 'dancing diggers' (probably in black and white on Tomorrow's World). Joe Bamford knew how to 'go viral' 40 years ago.

But due to a new emphasis on the developing worldwide markets that JCB addresses, the need for tailored video content has increased dramatically and its video editing facilities have been the first area to be upgraded with four Avid Media Composer suites and an Editshare storage server. As



JCB control room; (inset) mixer display



Conceptual schematic of JCB VIP theatre production integration

Video production manager for JCB, Peter Marsland explains: “We operate more like a news organisation in that we go out and get application footage and interviews and create news packages”.

Seeing JCB products being used out in the field and capturing the testimoni-

als of operators has been a powerful sales tool whilst extensive archives material project an aura of historical place and permanence.

Hand in hand with this direct communication medium has been, since 1970, the VIP visitors centre - a tasteful, marble-clad extension to the fac-

tory consisting of double-height entrance hall, large refectory (with its own stage and lighting), meeting rooms, an extensive exhibition space and the 200-seat presentation theatre itself. It's undoubtedly an impressive place to visit for overseas customers - especially if you're flown in on one of JCB's fleet of private aircraft.

The theatre has been host to every presentation device known to man - 35mm slides, film projection, early RGB video projection, Umatic, Beta-Cam et al. As Marsland comments: “After a lot of incremental upgrades we had ended up with a system that was quite unwieldy, and expensive to maintain”.

A decade or so of piecemeal patches and updates had left the system with four matrix switchers for different types of signals and two standard definition projectors to produce a sort of HD image, plus a mish-mash of various interfaces and customised single-function boxes. Any major presentation or live broadcast also required the hire of a large amount of additional equip-

### LIGHTING

The project included a complete overhaul of the lighting system designed by Justin Adams and installed by Stage Electrics. The original grid was removed and replaced with a motorised rig so a lot of focusing could be carried out at ground level, lessening health and safety risks. Some ceiling height could also be reclaimed. The use of moving lights means quick changeovers and the wholesale move to LED light fixtures has significantly reduced energy bills. Lighting control is via Avolites consoles.

### SOUND

Left, centre and right Bose RoomMatch arrays were flown above the stage with two sub-bass units below. Bose Panarray units are used for surround. The room was fully mapped and matched by Bose for even, controlled coverage. Audio is distributed throughout the complex via Dante nodes, stage boxes and network switches on an Ethernet network. Mixers are Yamaha LS-9s configured with Dante interface cards and two Macs running the Nuendo DAW are connected via Dante interfaces. Since HD-SDI can also carry eight channels of digital audio Sonifex ADCs and DACs break out HD-SDI audio if required.

### PRESENTATION

A number of Macs, PCs and iPads support the Keynote and PowerPoint presentations, Autocue, captions, etc. Extron interfaces are provided on stage for presenters' own equipment.



JCB VIP theatre

ment, plus its interfacing to the theatre's eclectic mix of gear.

"We wanted to strip everything back and start with a clean sheet of paper," says Marsland.

It was a simple fact that the existing set-up would not survive the six weeks of pounding the global dealer conference was about to subject it to - never mind the staff. To ensure the brave new world delivered what users actually required a lot of 'stakeholder research' was carried out - asking everybody involved what they wanted. This included sales, HR, press office, management and the operators that had been gamely holding the old system together. One major theme emerged; everybody wanted to be able to put absolutely any source on to absolutely any screen - a simple request that was frustratingly difficult to achieve in the days of what Feltech's Nevil Bounds and Peter Fell (md) would both call 'traditional AV'.

The decision was made early therefore that the backbone of the entire presentation system would be an HD-SDI switcher and that every source would be converted to an HD-SDI output at 1080p as soon as possible in the chain, and that every display unit would have an HD-SDI input. This really means every possible source including the computers for Autocue and even the CCTV cameras.

As Bounds was quick to point out, five or six years ago a high definition switcher of sufficient size would have cost over £100,000 - out of the question. Today the innovative Australian company Blackmagic Design will sell you a 72 x 144 channel HD video matrix for under £10,000.

The other common stakeholder concern was presentation style. Nobody liked the usual 'Presidential' Autocue mirror stands and wanted to be able to walk the stage, gesturing at the main screen. In essence everybody wants to be Steve Jobs. This is the reason the Autocue sources are on the matrix. They can be routed to screens at the back of the theatre or to screens at the front of the stage for the short-sighted presenter. Additionally a rear projector becomes a must for this style of presentation and the brave decision was made to have both front and rear Christie 12K projectors plus screens - the rear projector mounted on its own pantograph for when the stage is full of 30-tonne diggers. Actually there are two Christies on the front creating a very bright digital cinema style experience and the possibility of projection mapping the aforementioned diggers.

As an ex-broadcast engineer at the



JCB VIP theatre, podium and stage



BBC and Sky, Marsland had one other frustration that had to be addressed. Even with his new digital file-based edit suite, conveying finished segments to the theatre would still involve 'sneaker-net'; somebody would have to take it there on foot. This bottleneck has now been solved in a most interesting manner.

Originally a standard broadcast style video mixer was to be installed in the control room but late in the day Marsland saw a demo of a Broadcast Pix mixer which integrated a video clip player. It was originally developed for fast-paced American sports broadcasting. An idea began to form.

A dual 10gig fibre-optic link has been installed from the edit suite to the theatre control room where it meets a Geevs Live server. The Geevs provides a four-channel realtime HD ingest or output for the edit network. Now the clever bit; during a show the Geevs ingests separate feeds from three remote control cameras in the theatre plus the presentation graphics feed. These files are then immediately available in the Avid suite for editing. However it also takes the Tally information from the live vision mixer and uses it to create a timeline and imports the edit decisions that the person operating the vision mixer is making.

This means that after a delay of

about 20 seconds editors in the production suite are able to start tweaking and sweetening an edit of the live show that continues below. If the live mixer has been doing his/her job well, within a minute of the end of the live show a finished highlights edit can be squirted back to the control room where it will show up on the Broadcast Pix panel, ready to be played back to a suitably shocked and awed audience. This represents integration between production and presentation of the highest order.

While live shows that need substantial lighting, sound, vision, camera, PowerPoint/keynote, translation and Autocue crew are now easily accommodated, the routine everyday operation of the theatre (it's in use for most of the time) will often need to be a one-man affair. To this end a Medialon show control system has been installed that talks to every significant piece of equipment via Ethernet and a library of standard operating scenarios is being built up.

The JCB VIP theatre is an outstanding achievement by both Feltech and JCB and sets the benchmark for such facilities. The removal of multiple frustrations by the use of a central universal matrix fires the imagination and as Marsland says of the finished system: "The creativity it has unleashed is amazing". ■