



# NDP 2016

Singapore celebrated its 51<sup>st</sup> birthday as an independent nation on 9<sup>th</sup> August 2016 with the annual National Day Parade (NDP). This year marks a return of NDP to the National Stadium after 10 years, during which the stadium was completely re-built.

The Creative and Production Team for NDP16 started work in September 2015, helmed by Creative Director Beatrice Chia-Richmond and Technical Director, Kenny Wong. From the onset there was close collaboration within the team from concept to development to production. This spirit of

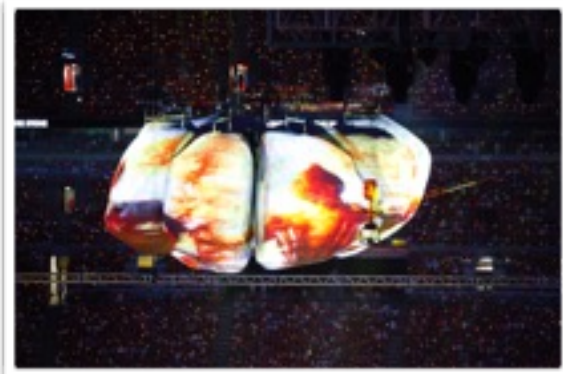
collaboration eventually carried through to the contractors as well. Through this culture of collaboration, plus a sense of adventure, the show that resulted featured quite a few ground breaking elements for Singapore, the region, and even the world.

## National Day Parade 2016, Singapore.



### *SET & PROPS*

One of the stunning set piece is a gigantic boulder, measuring 13.5 metres across and 7.2 metres tall, which was suspended over the main stage. This boulder 'exploded' and split into 8 fragments at the start of the show. Due to the limitation of what the stadium roof can hold, all the flown elements needed to be lightweight. The lightweight solution we found for the boulder was to make them out of inflatables with a digitally printed skin.



Boulder



Stone

## CREATIVE & PRODUCTION TEAM

Creative Director  
BEATRICE CHIA-RICHMOND

Technical Director  
KENNY WONG

Music Director  
DON RICHMOND

Multimedia Director  
BRIAN GOTHONG TAN

Stage & Set Designer  
SEAH CHEE HUANG (DPA)

Props Designer  
GERALD LEOW

Costume Designer  
TUBE GALLERY

Lighting Designers  
MAC CHAN & MICHAEL CHAN

Sound Designer  
SHAH TAHIR

Chief Choreographer  
JEFFREY TAN

Aerial Choreographer  
ABIGAIL YEATES

Associate Stage & Set Designers  
YAP JIA HUA, AMIRULLAH HARTONO &  
LIM YIN CHAO (DPA)

Production Manager (Technical)  
CHEW YONG FA

Production Manager (Scenic & Aerial)  
MARC-ANDRE THERRIEN

Production Manager (Audio & Power)  
CHANDRA MOHAN (MDC)

Production Manager (Costume)  
MELISSA CHIN

Technical Manager (Multimedia)  
MELVIN LEE

Show Caller  
JURAI DAH RAHMAN

Technical Caller & Associate to TD  
DENISE LOW

Nestled within the boulder is the Stone, an enlarged replica of the Singapore Stone, which was constructed with an aluminium frame skinned with moulding cloth. This option was chosen in order to accommodate lights within which internally illuminated the inscriptions on the Stone. These two items were fabricated by *Stage One Creative Services (UK)*.

The other jaw-dropping set piece was the Sky City, which was made up of 15 clusters of buildings, that rose from the stage and eventually floated above it. Each cluster has an average footprint of 5 metre square and the buildings went up to 35 metres in height. The challenge of the Sky City is that it not only needs to be lightweight but each of the building cluster had to be able to collapse into a cart that is no taller than 70 centimetres. So in order to achieve this, the Sky City was constructed primarily of fabric with aluminium and carbon fibre frames. The Sky City is fabricated by *Showtex (HK)* <http://www.showtex.com/en/projects/singapore-national-day-parade>.

The other large scenic item was the pair of tree trunks which 'grew' out from the stage floor. These were inflatables that had a controlled inflation system that made them look like they are growing rather than being inflated. These tree trunks helped transform the Sky City into a giant Tree, with some help from projection. This was also fabricated by *Stage One*.



Unicorn

## CONTRACTORS

Stage & Groundwork  
PICO ART INTERNATIONAL  
[www.pico.com](http://www.pico.com)

Automation  
STAGE ONE CREATIVE SERVICES  
[www.stageone.co.uk](http://www.stageone.co.uk)

Lighting  
SHOWTEC COMMUNICATION  
[www.showtecgroup.com](http://www.showtecgroup.com)

Sound  
THE SHOW COMPANY  
[www.show-company.com](http://www.show-company.com)

LED Screens & Multimedia Control  
THE SHOW COMPANY  
[www.show-company.com](http://www.show-company.com)

Projection  
HEXAGON SOLUTION  
[www.hexagonso.com](http://www.hexagonso.com)

Projection Consultant  
VYV  
[www.vyv.ca](http://www.vyv.ca)

Multimedia Cameras & Control  
3818 VISION  
[www.3818vision.com](http://www.3818vision.com)

Sky City  
SHOWTEX  
[www.showtex.com](http://www.showtex.com)

Inflatables  
STAGE ONE CREATIVE SERVICES  
[www.stageone.co.uk](http://www.stageone.co.uk)

Unicorn  
Q'S ADVERTISING  
[www.qs.sg](http://www.qs.sg)

Giant Skirts  
PART 1  
[www.part1design.com](http://www.part1design.com)

Fireworks & Effects  
GLORIOUS  
[www.glorious.com.sg](http://www.glorious.com.sg)

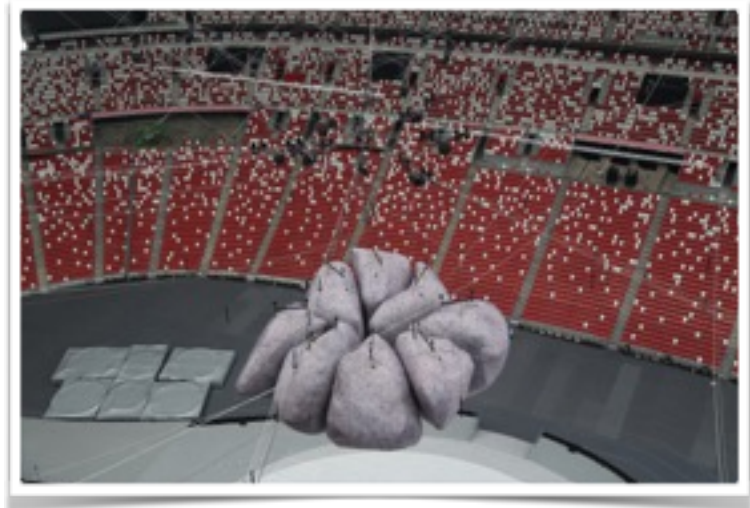
LED Wristbands & Prop  
PIXMOB  
[www.pixmob.com](http://www.pixmob.com)

Communications  
RIEDEL RENTAL  
[www.riedel.net](http://www.riedel.net)

One of the iconic moments of the show was when a Unicorn flew across the stadium. This Unicorn is a life-size automaton prop, clad with a skin of over 14,000 LEDs. Both the motion and LEDs are controlled via wireless DMX. This prop is constructed by *Q's Advertising (SG)*.

### AERIAL FLY SYSTEM

The bespoke fly system installed by *Stage One (UK)* consisted of a cable net system and a series of point hoists. The cable net had 8 catenary lines anchored onto the stadium roof, each line carrying a trolley hoist, plus 2 point hoists in the central hub. Another series of 15 point hoists were suspended off pulleys bridled to the stadium roof.



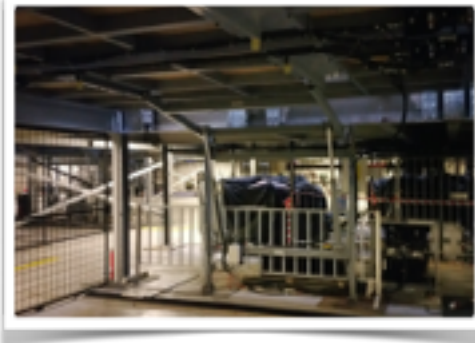
Boulder suspended off cable net system

The trolley hoists allowed us to suspend and move the boulder fragments horizontally. One of the trolley hoists was also used to fly the Unicorn across the stadium. The 15 bridled point hoists had the job of lifting our Sky City of 15 clusters of buildings up in the air. The combination of the point hoists and some of the trolley hoists allowed us to also fly 20 aerialists simultaneously. All of these axes, plus 6 slide trap doors and the 2 inflatable tree trunks were controlled by Stage One's Q-Motion automation system.

### MAIN STAGE

The creative team decided early on that a stage was needed instead of using the entire field-of-play. The 60 metre diameter stage provided the audience with an area to focus on. The stage being raised 2.5





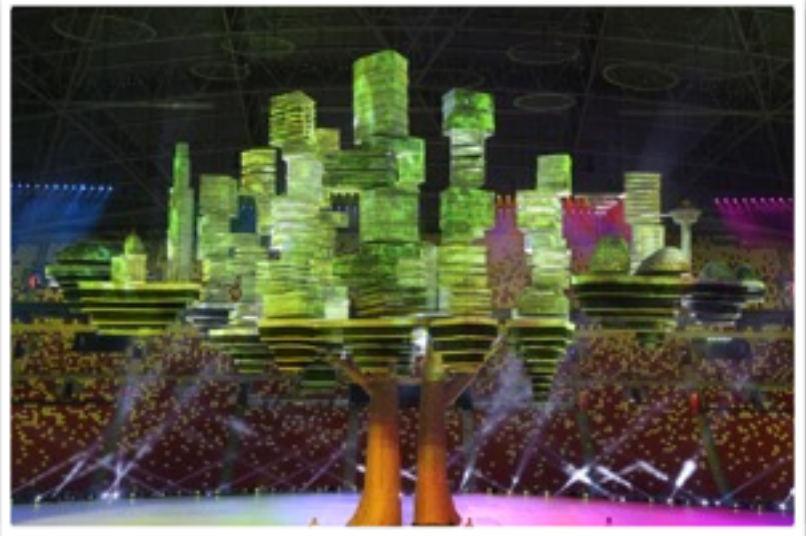
Drop Trap

metres above the ground provided an understage from which elements could be introduced on stage through a series of traps. The stage and 7 hydraulic drop traps, were built by *Pico Art (SG)*. An additional 6 slide traps by Stage One were incorporated into the stage.

### PROJECTION MAPPING

3D Projection Mapping added another dimension to the Large Boulder and the Sky City. This made the already impressive scenic pieces more dynamic. There were two huge challenge to achieving this. Firstly, the projection mapping needed to be 360 degree and the object being projected on was not monolithic – it was made up of 15 independent clusters which casted shadows on each other.

Secondly, the challenge was that each of these objects did not hang perfectly still. Each cluster of the Sky City was suspended off a single point which meant they could spin and sway.



Sky City transforms into Tree



Boulder with projection

*VYV (CA)* was engaged during the conceptual phase as a consultant on the feasibility of the concept. What resulted is the largest scale 360 degree real-time tracking 3D projection mapping project. *Hexagon Solution (SG)* helped us achieve this. The system included 66 Christie Boxer 4K30 digital projectors, 12 Photon Media Servers, plus 250 tracking beacons with 40 tracking cameras.

<http://www.hexogonsol.com/hexogonsg/news-updates/worlds-largest-real-time-tracking-3d-projection-mapping.html>

### LIGHTING & LASER

The principal considerations for the lighting design was firstly, being bright enough for broadcast; secondly, providing a backdrop for cameras and lastly, lighting for a 360 degree live audience. With these considerations in mind, the lighting design team

decided on the following inventory: 400 Robe BMFL Blade, 100 Robe BMFL Spot, 100 DTS Raptor, 72 Martin Viper and 12 DTS Wonder. 12 Haze Master have also been deployed. The control was two Grand MA 2 Full Size – one main and one back-up. The design and programming began a full month before we moved into the stadium using Light Converse visualisation. The lighting system was provided by *Showtec Communications (SG)* <https://www.facebook.com/ndpeeps/videos/10154310750878529/>



Lighting, Laser, LED Costumes & Pixmob Props

At an early stage, the lighting design team decided to employ lasers to provide an added dimension to the lighting design, in keeping with the futuristic concept of the show. It was also part of the original concept to use laser projection on the floor of the stage. Therefore, a total of 12 units of Kvant Atom 20 RGB Laser units were flown to project images on the stage floor; while another 24 of the same units were deployed on the ground providing beam and wave effects, plus projecting images on the roof. This is the most extensive use of lasers for any show in Singapore.

There was also an extensive use of Wireless-DMX transmitters and micro receivers . Items controlled included the lights in the Stone, the LEDs and movement of the Unicorn and more than a hundred LED costumes.



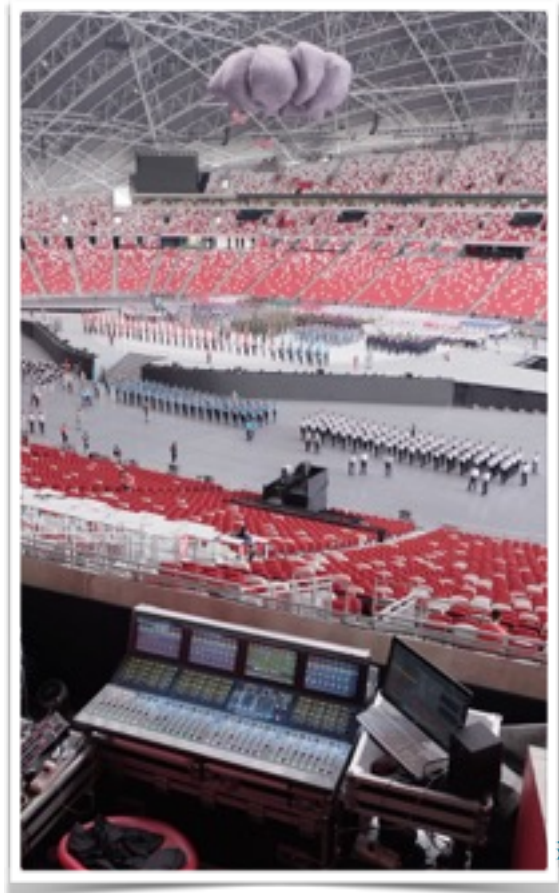
WDMX controlled LED Costumes

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### SOUND

The National Stadium, with its dome roof, poses an enormous acoustic challenge. To address this highly reverberant environment, the design was for speaker clusters with very focused dispersion and to only have the minimal amount of foldback speakers in the field-of-play, which is only used for the parade segment. All performers in the show segment were furnished with FM receivers as monitors.

*The Show Company (SG)* set out orchestrating an intricate setup based on their comprehensive inventory of CODA Audio. At a glance, this consisted of 138 AiRay modules, 44 ViRay modules, 38 SC2 bass extenders, 32 G715 speakers, 110 Linus10 amplifiers, 6 Linet Masters and 12 Linet Switches, culminating in 26 arrays strategically flown



FOH Mix Position



throughout the stadium. At the helm is an AVID Venue S6L with much welcomed 96kHz sampling. Over a kilometre's worth of heavy 6mm speaker cables were made specifically for this massive show to ensure consistent and stable sound over long cable runs.



### LED SCREENS

This year's NDP proved to be significantly different from previous years, at least in the video department. While a considerable amount of LED found its way to the stage design, majority of the whopping 2200 LED panels went into four huge IMAG screens securely tucked in four corners of the stadium. Measuring 16 by 9 metres, these big screens underwent multiple alterations to fit snugly in their respective corners while maintaining the largest possible viewing area, almost coming close to reaching the roof beams of the stadium! Four 32-metre curved stage "fascia" LED screens clad the sides of the stage. The multimedia control comprising of four fully utilised Coolux quad-output media servers and three 17x17 Lightware matrices provided reliable distribution to each screen. *The Show Company* provided the LED screens and the multimedia control.

### LED WRISTBANDS & PROP

One of the challenge for creating a show with audience surrounding the action in 360 degrees is that there is no 'backdrop' to the performances. Therefore, to create a 'backdrop', each of the 55,000 audience was given an LED wristband which was remotely controlled. This turned the audience into a sea of LED lights. This also helped make the audience feel very much part of the show. *Pixmob (CA)* provided the show with its infra-red controlled solution - Pixmob Pro. The choice of using infra-red, instead of RF, also helped ease the already crowded RF environment we were in. NDP 2016 saw the inaugural use of Pixmob's new Wristband X, which is more cost-effective and environmentally-friendly than their other LED objects. In addition to the audience wristbands, Pixmob also supplied and controlled the LED props used by 600 dancers to create a variety of images on stage.



Pixmob Wristband X

## COMMUNICATIONS

The backbone of any show is the communication system. *Riedel Rental (DE)* provided NDP2016 with a comprehensive show communication system based on their Artist Digital Matrix Intercom platform. This allowed seamless integration of intercom panels, wired and wireless belt packs and walkie-talkie radios. Riedel also provided the Mass Cast FM system for performer monitoring.

## FIREWORKS

*Glorious (SG)* designed and delivered all the indoor pyrotechnics and outdoor fireworks, including the confetti venturi effect and flame projectors. Working closely with the lighting and laser design team, Glorious designed the largest indoor pyrotechnics spectacle Singapore has ever see, in addition to the fireworks fired from Kallang Basin outside and the roof of the National Stadium.

### FULL PARADE & SHOW:

<http://video.toggle.sg/en/series/national-day-ch5/ep18/437645>

### CHANNEL NEWS ASIA DOCUMENTARY:

<http://video.toggle.sg/en/series/ndp-2016-return-to-national-stadium/ep1/436781>

### PHOTOS DOWNLOAD:

<https://www.dropbox.com/sh/qixy4xbfkovdpfu/AADHuQj70LeI3BShbS-lgr-qa?dl=0>

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