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Cloud Robotics Probing for SI/PI

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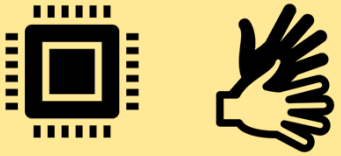
- Introduction/Innovation
- Solution/Results
- Current Status and Future Plans

Problem Statement

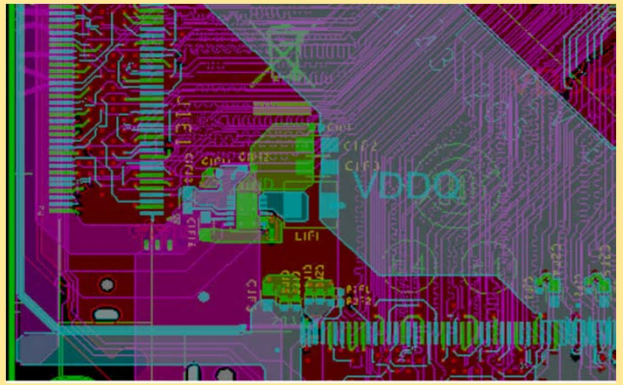
Problem 1

Insufficient hands-on support for customers performing signal integrity or validation test



Problem 2

Incorrect or outdated layout file or component specification causes slow debugging process



Problem 3

Multiple Platform Rework Poses risk of unbale to boot up or shorting

Problem 4

Questionable probing accuracy that causes not accurate measurement data

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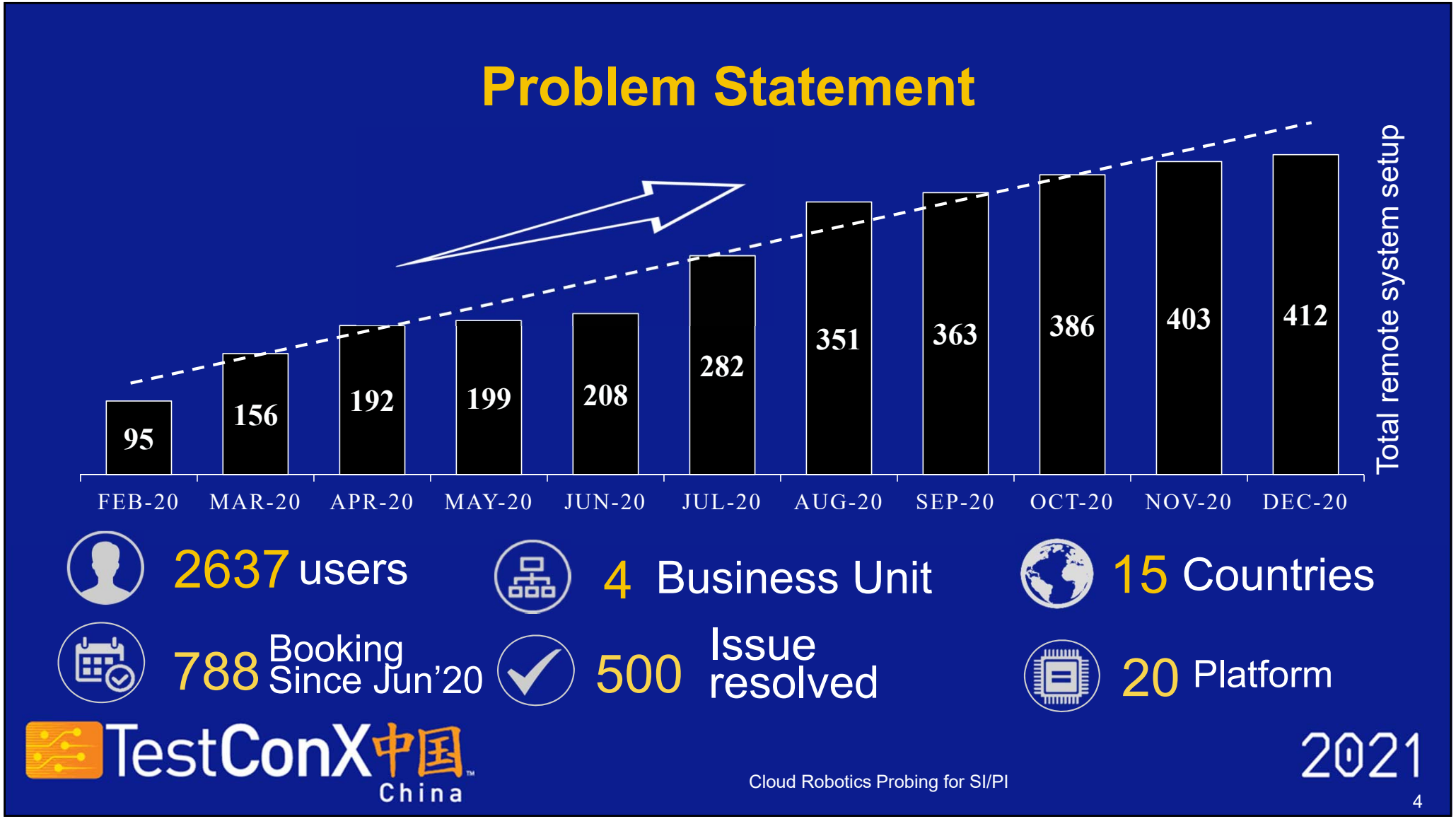
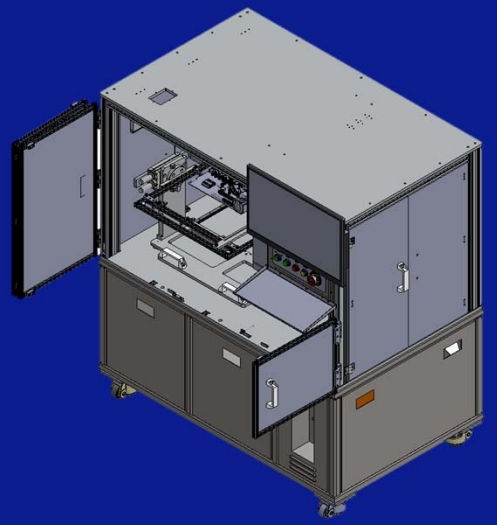


Introduction / Innovation

The Robotics Probing System (RPS) is an innovative zero human touch/ touchless semi automatic probing system (IoT , Robotics and Augmented Reality) that aims to provide engineers to virtually control movement of oscilloscopes probes to obtain signal integrity and waveform measurement.

This solution allows remote access to perform validation and integrity test on platform that lack on availability in their geo-site with 24/7 availability



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Solution Feature 1 : Remote 3-axis Probing

- X-axis motor for left and right
- Y-axis front and back
- Z-axis up and down axis

- Accuracy of bidirectional axis positioning of 30 µm ~ 70 µm
- Repeatability of bidirectional axis positioning of 6µm ~10µm
- 10° of fine Θ adjustment

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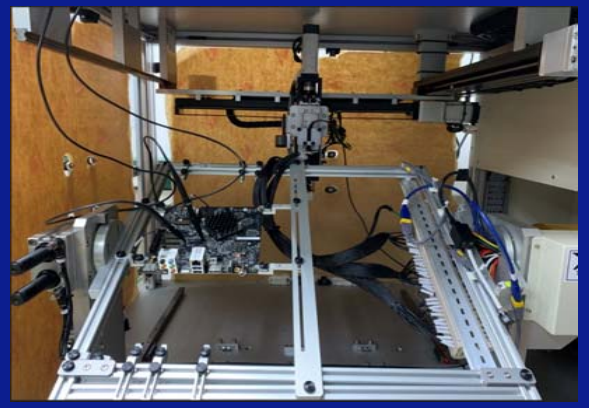
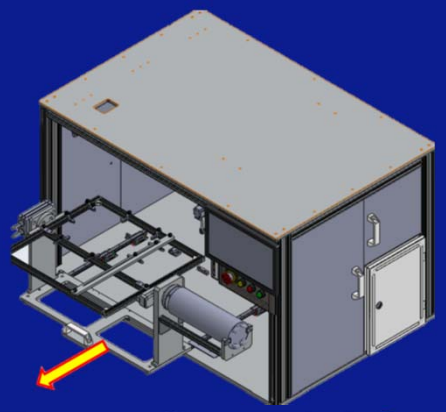
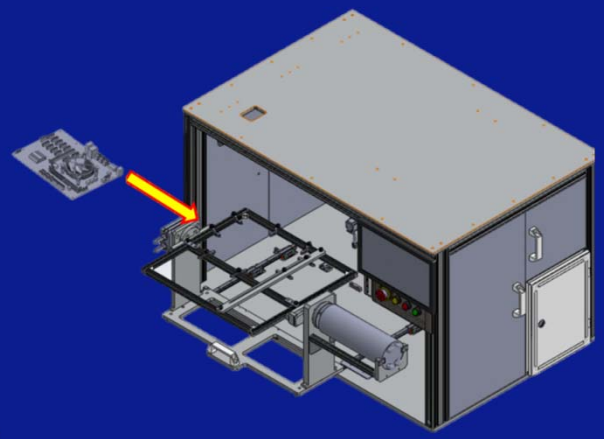
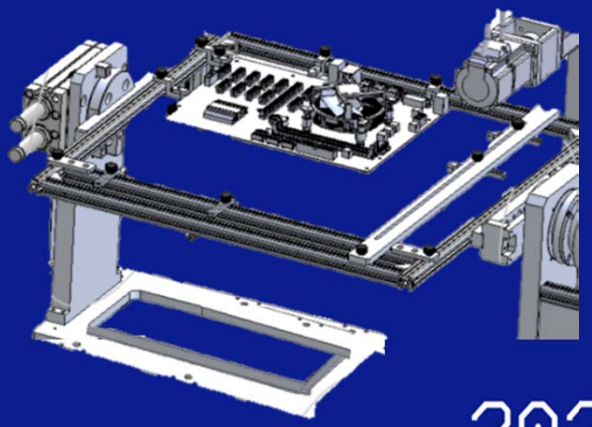
Solution Feature 2 : Adjustable frame



- Frame size of W370mm x L370mm x H50mm
- 180° of front and back rotary cylinder flipping mechanism
- Maximum board weight of approx. 3000g







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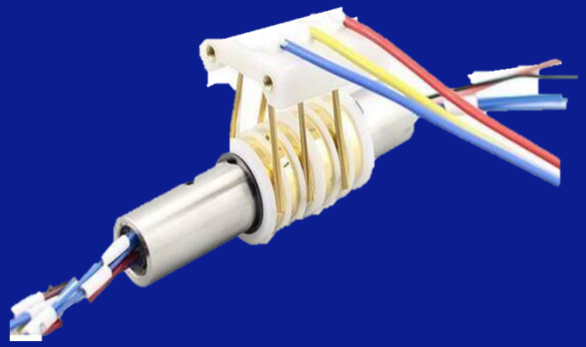
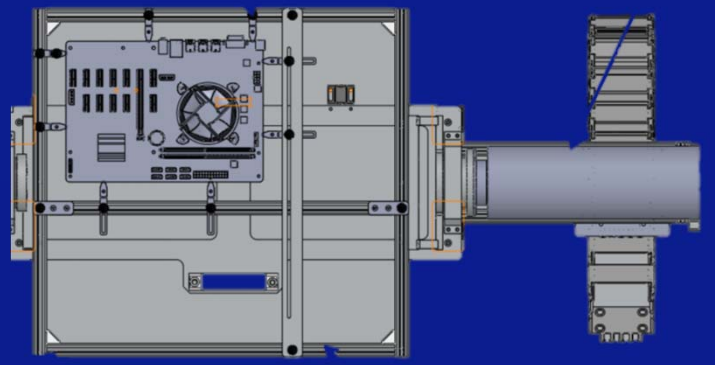
Solution Feature 3 : Continues 360 ° wire connection

- Electromechanical wire connection for power and electrical signal transfer
- Space saving while allowing signal flow without wire tangling





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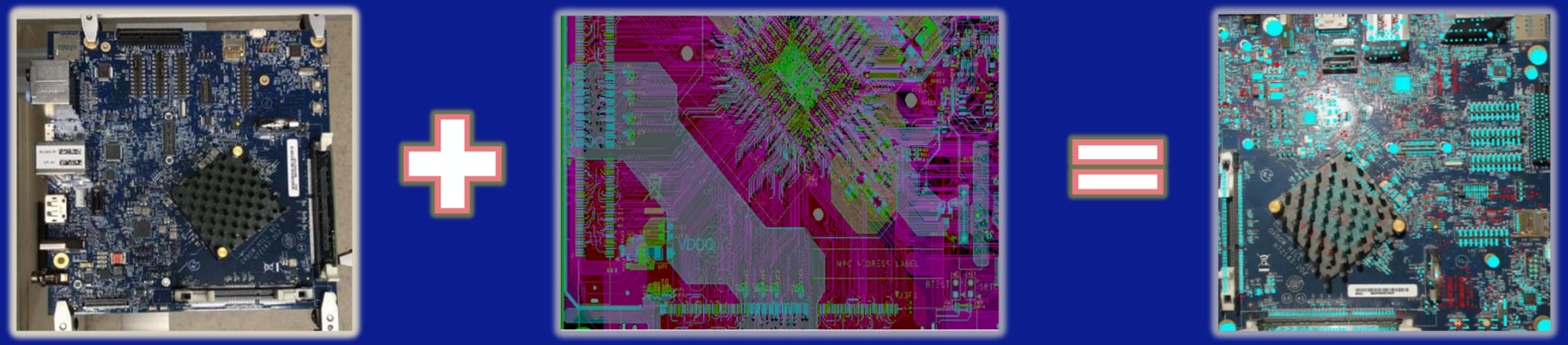
Solution Feature 4 : Augmented Reality Layout Viewer

- Overlaying every aspect of a design directly onto the circuit board with augmented reality
- Reduce the need of viewing .brd file back and fore
- Integrated Cadence's unified component search engine
- Supports .kicad_pcb board file, allegro .brd file. IPC2581B by Cadence, Altium and many other EDA's



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Solution Feature 4 : Augmented Reality Layout Viewer

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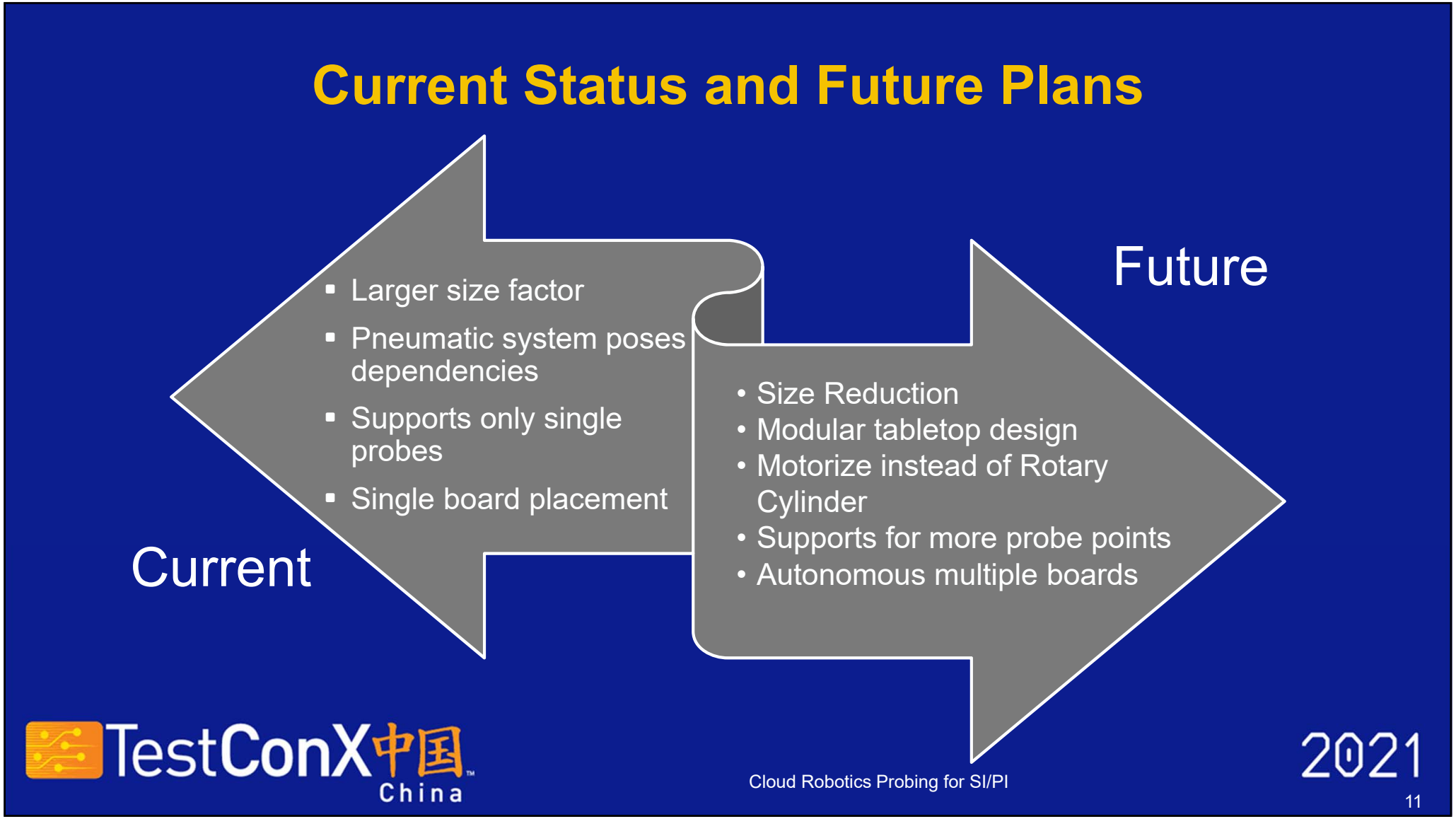
Current Status and Future Plans



Future Deployment Plans

FUTURE PROJECTS

- Implementation customers to allow early access to projects and platforms
- Collaboration with Electrical Validation Teams

FUTURE ECOSYSTEMS

- Enabled for external customers from various business segments and across different geo sites and business unit
- Collaboration between Education program such as FPGA University Program

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