



### Why Change

- > Reduction in energy consumption
- > Maximized image availability
- > Reduce power supply complexity and cost



### Application Background

The customer specializes in the development and manufacture of LED information systems, primarily LED video modules for assembling indoor and outdoor video screens. Currently, the customer produces several types of video modules for outdoor video screens and some ultra-high resolution for indoor use.

### Challenges

Using a single centralized supply to provide the 48V rail voltage results in drops in the distribution bus, causing power losses and supply issues to the LED driver chips. Using multiple AC-DC supplies, one for each panel, is costly, complex and creates hot spots in the display. Distributing bulk 48V from a centralized AC-DC front-end, followed by 48V input Buck Regulators, reduces heat losses, improves reliability and reduces panel thickness.

### Why Vicor?

Vicor ZVS Buck-Boost Regulators (PI34xx) feature a wide 48V input voltage range to accommodate distribution losses. Their small size (10 x 14 mm) and low profile (2.6 mm), together with their high efficiency (>98%), minimized heatsinking and helped avoid "hot spots", as well as improving reliability and simplifying panel installation and repair. The high power capability of the Vicor ZVS device required fewer regulators and so reduced power supply complexity and cost.

[Link to Whiteboard »](#)

### Power Supply Specifications

<b>Input</b>	84 – 264 V <sub>AC</sub> , 1 kW
<b>Output</b>	48V Bus driving 5V, 150W per panel
<b>Load</b>	LED Array via LED Driver Chips

