



Video Wall Display

HVDC Reduces Cabling Weight and Distribution Losses



HVDC



Minimize Conversion



High Efficiency



Technical Support

The Customer's Challenge

A manufacturer of video display walls wanted to expand the size of their current display to operate reliably over additional buildings, while improving the color fidelity of the displays. The linking of panels over the large area being contemplated was a technically challenging exercise, especially as they were also looking for ways of reducing operational and installation costs.

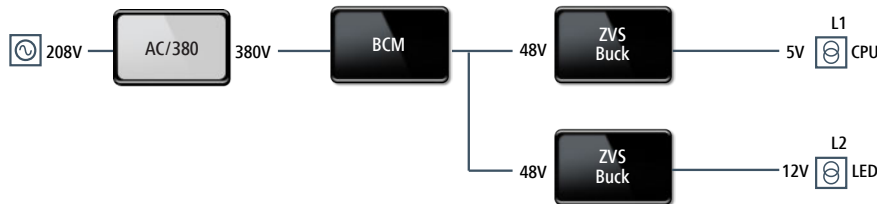
Although they had limited power supply expertise the design team recognized the impact of the power architecture chosen in meeting these objectives.



The Solution

Working with our applications engineering team it became clear that a move to a high voltage DC distribution (HVDC) architecture would enable the team's objectives to be met. The panels were powered from an AC front-end, providing 380V DC, which was bussed to individual display panels mounted remotely. On each panel a BCM High Voltage Bus Converter Module transformed the 380V bus directly to 48V, two ZVS Buck Regulators converted the 48V directly to 12V and 5V for the display drivers, removing a conversion stage.

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The Results

The challenge of installing a display of this size and weight, with its associated cabling, almost stopped the development before it started. Only with a move to a Vicor component-enabled higher voltage bus voltage did it become feasible. The reduced diameter of the cabling enabled by the move to 380V significantly reduced its weight for ease of installation. The removal of a conversion stage, and the lightness of the power components, further reduced the system weight.

The change to a 380V distribution minimized the power distribution loss over the hundreds of meters of cable, reducing operational costs by minimizing energy consumption.

The high efficiency of the solution (95%) reduced waste heat, improving color fidelity and reliability.

Product Family Key Specifications

Cool-Power® ZVS Buck Regulator Module

Input Voltages	12V Nominal (8 – 18V _{IN}), 24V Nominal (8 – 36V _{IN}), 48V Nominal (8 – 60V _{IN}).
Output Voltage	Wide output range (1 – 16V)
Output Current	8A, 9A, 10A, and 15A versions
Efficiency	Up to 96.5% Light load and full load High efficiency performance
Dimensions	LGA SiP: 10 x 14 x 2.56mm

BCM® High Voltage Bus Converter Module

Input Voltages	200 – 400V 260 – 410V
Output Voltage	From 8.1 – 51.3V
Output Current	6123 ChiP: Up to 125A
Efficiency	Up to 98%
Dimensions	6123 ChiP: 63.34 x 22.80 x 7.26mm