



## Airborne Radar

# Scalable, Low Weight DC-DC Solution for High Capacitive Loads



Customized Product



Pulsed Load



Scalable

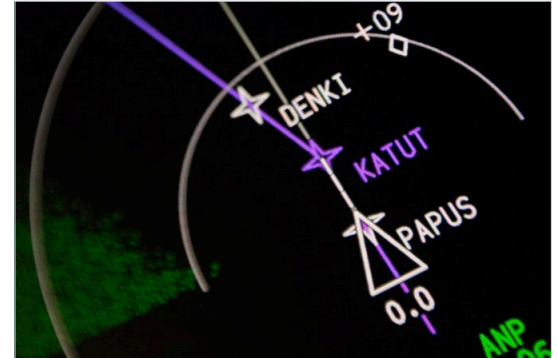


Small Size, Low Profile

### The Customer's Challenge

We recently worked with a customer that had a variety of unique power system challenges. The application required a specific non-standard input range and special output voltages. The power supply needed to support a pulsed load that utilized large bulk capacitors charged from constant current sources. The system needed to be scalable, meeting several different load and power requirements.

To minimize interference with associated equipment, the DC-DC converters needed to maintain a constant switching frequency and the power design had to be lightweight and have a small footprint due to the limited space.

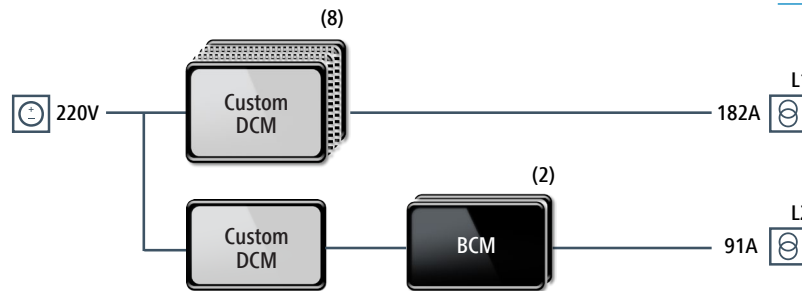


### The Solution

Our applications team worked with the customer to develop a solution that used a mix of standard power components and DCM DC-DC converter modules configured to meet the application's non-standard input requirements.

Eight of these DCMs were placed in parallel to create a high power 3.2 kW regulated 22V output that fed a 200 mF bulk capacitor. Another configured DCM provided a 53V output, which was converted to a 3.3V, 300W output by a pair of K=1/16 bus converter modules (BCMs).

[Link to Whiteboard »](#)



### The Results

Vicor's configured DCM capability minimized the non-recurring engineering costs associated with application-specific converters and provided a short lead time and a cost-effective solution. The output powers of either output rail could be scaled up or down by adding or reducing the number of converters in the arrays. The DCMs' constant switching frequency simplified the filtering required to avoid interference affecting associated sensitive equipment.

Use of power components meant the system was straightforward to implement and provided a flexible, scalable and efficient solution that met time-to-market objectives.

#### Product Family Key Specifications

##### DCM™ DC-DC Converter Module

|                        |   |
|------------------------|---|
| <b>Input Voltages</b>  | 9 – 50V <sub>DC</sub> , 16 – 50V <sub>DC</sub> , 18 – 36V <sub>DC</sub> ,<br>36 – 75V <sub>DC</sub> , 120 – 420V <sub>DC</sub> ,<br>160 – 420V <sub>DC</sub> , 200 – 420V <sub>DC</sub> |
| <b>Output Voltages</b> | 5V, 12V, 13.8V, 15V, 24V, 28V, 36V, 48V   |
| <b>Output Power</b>    | 4623 ChiP: Up to 600W<br>3623 ChiP: Up to 320W  |
| <b>Efficiency</b>      | Up to 93%   |
| <b>Dimensions</b>      | 4623 ChiP: 47.91 x 22.8 x 7.26 mm<br>3623 ChiP: 38.72 x 22.8 x 7.26 mm  |

##### BCM® Low Voltage Bus Converter Module

|                       |                       |
|-----------------------|-----------------------|
| <b>Input Voltages</b> | 36 – 60V              |
| <b>Output Voltage</b> | From 2.4 – 55V        |
| <b>Output Current</b> | Up to 70A             |
| <b>Efficiency</b>     | Up to 97.9%           |
| <b>Dimensions</b>     | 32.5 x 22.0 x 6.73 mm |