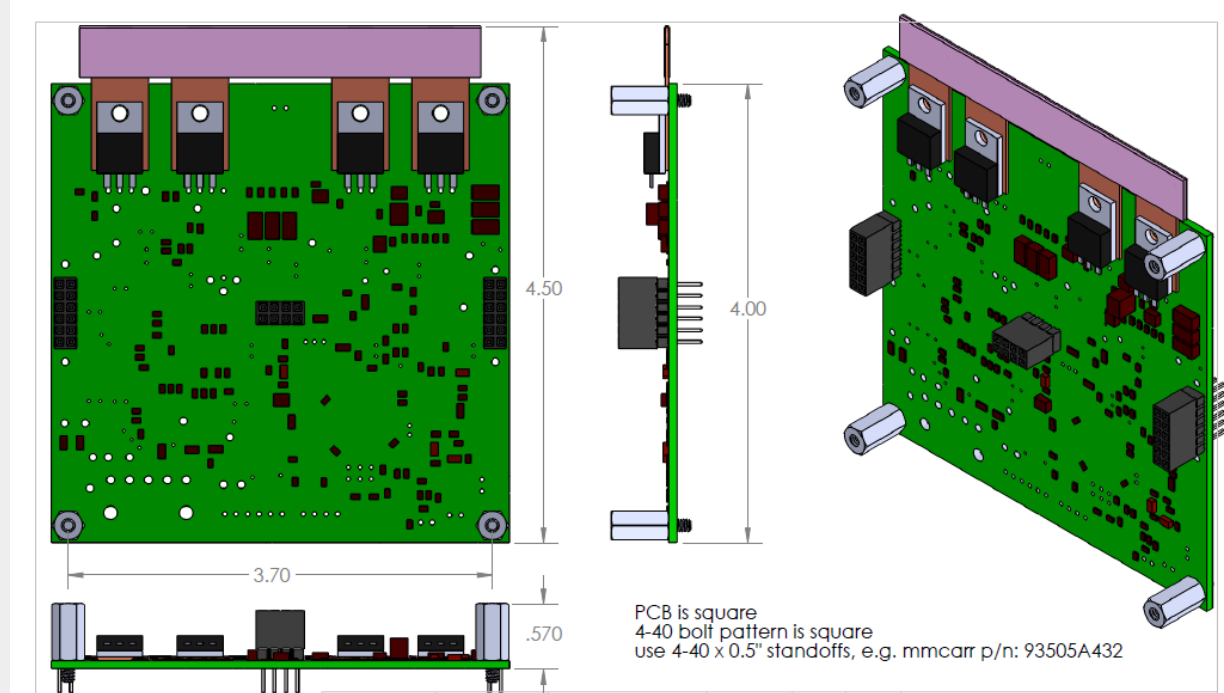


PCB Mechanical Specifications

This page presents the mechanical specifications for PCB's in the ICE Platform when being integrated by an OEM.

PCB Dimensions

All PCB's in the ICE Platform follow identical board dimensions and header/mounting hole locations. The PCB's themselves are 4 inches square and contain 4 mounting holes for 4-40 screws on each corner. All contain a power bus header on each side (Samtec PN: ESQ-106-13-T-D) and a digital communications bus header (Samtec PN: ESQ-104-13-T-D) in the middle of the PCB. These headers are 0.1 inch pitch board-to-board headers that allow interconnection between boards when stacked, as shown in the [next section](#). At the edge of the board there are copper tabs extending from four IC's (TO-220 package) for heatsinking. Details on proper heatsinking are described in a [later section](#). Note that not all boards will utilize all four heatsinking positions.



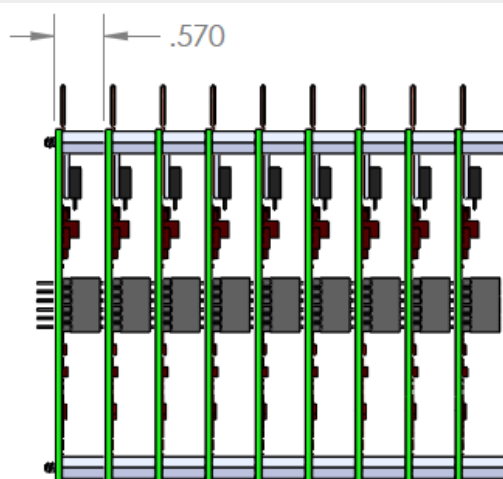
PCB dimensions.



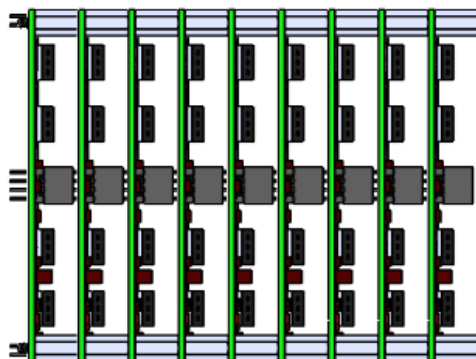
[Technical Drawing](#)

PCB Stackup

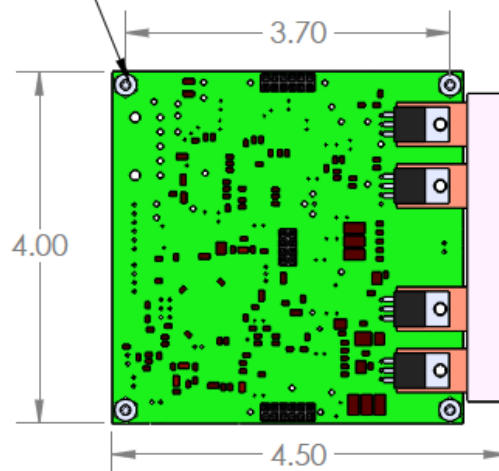
The PCB's are designed to stack on one another with each of the board-to-board headers mating, thereby forming a power distribution and communications bus between boards. The PCB's can be stacked by using 0.5 inch length 4-40 standoffs between boards in the four mounting holes at the corner. The maximum stack height is 9 boards total.



The 'pitch' of the stack, i.e. the thickness of one board plus the standoff is 0.5700"



4-40 x 0.5" Stand-Offs
PCB has holes for 4-40 Screws
The bolt pattern is square
PCB is square



PCB stacking mechanics.

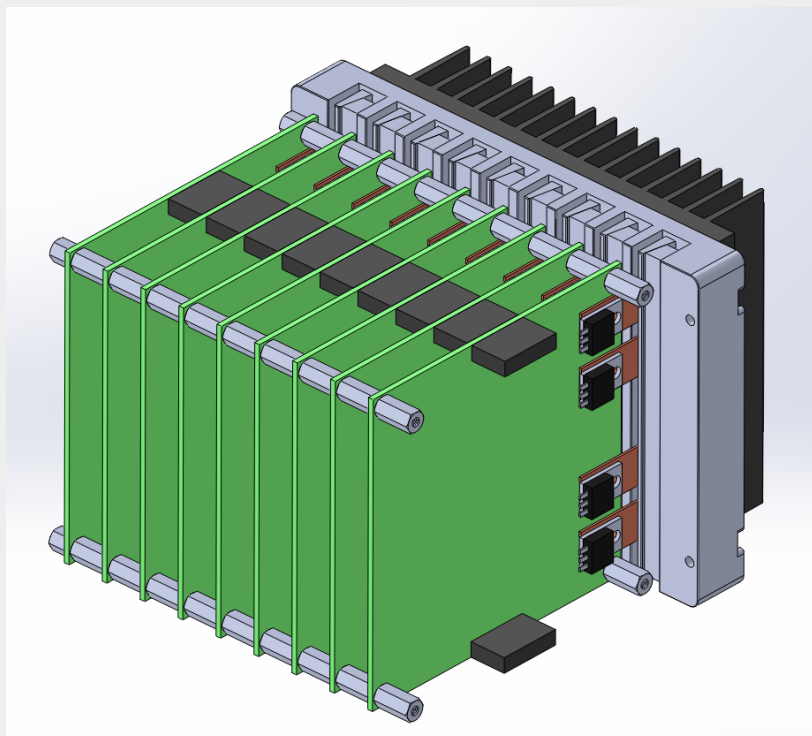


Technical Drawing

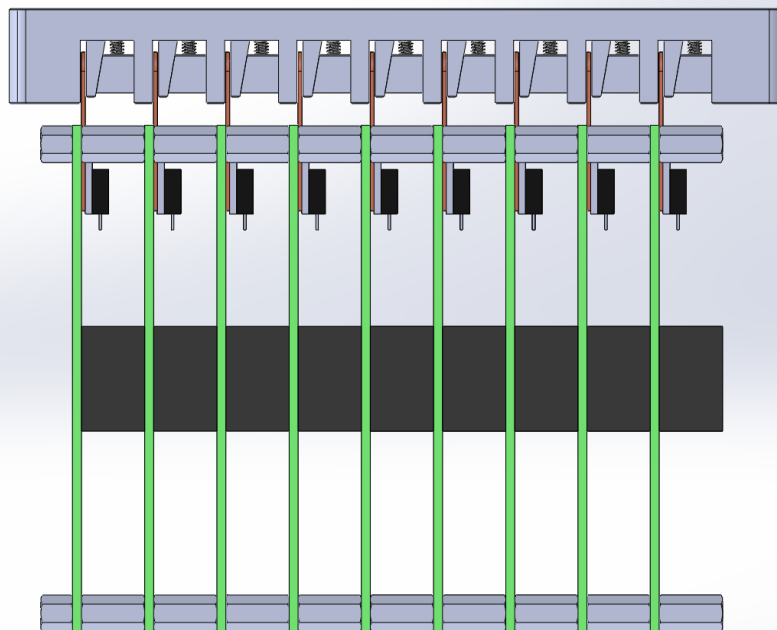
Thermal Management

Each PCB exposes up to 4 copper tabs to conduct heat out from power dissipating components to an

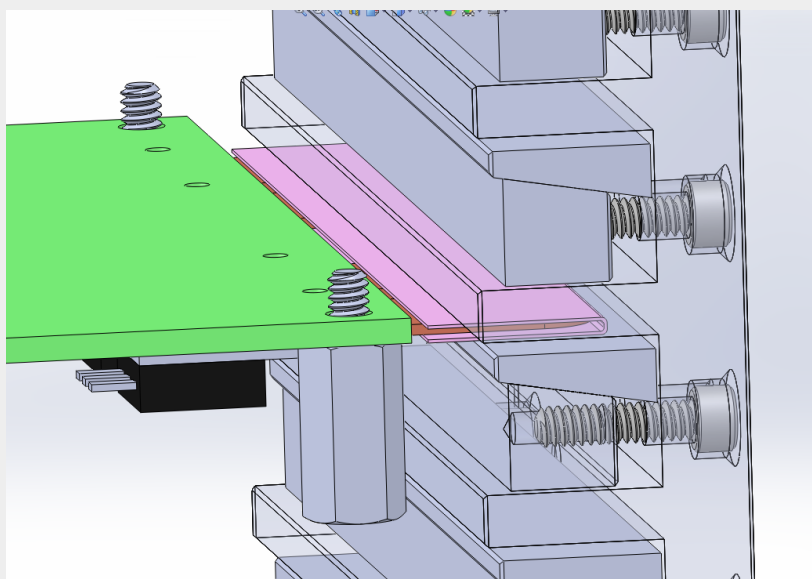
external heat sink. The copper tabs are not electrically isolated, so electrical isolation is required at the interface between the heatsink and copper tab. Failure to isolate these tabs will result in malfunction of the ICE module. For electrical isolation with good thermal conductivity, **Sil-Pad** can be used. Sil-Pad requires a certain amount of pressure to ensure good thermal conductivity, so a clamp mechanism should be applied to the copper tabs. In the **ICE Platform** enclosure, a wedge-based clamping system is used. The mechanics and dimensions of this are detailed below.



Overall pcb heatsink stackup



Top view of the stackup.



Detail view of wedge clamp. Pink material is Sil-Pad for electrical isolation.



[Technical Drawing](#)

From:

<https://www.vescent.com/manuals/> - **Product Manuals**

Permanent link:

https://www.vescent.com/manuals/doku.php?id=ice:pcb_mechanics&rev=1404154325

Last update: **2021/08/26 14:26**

