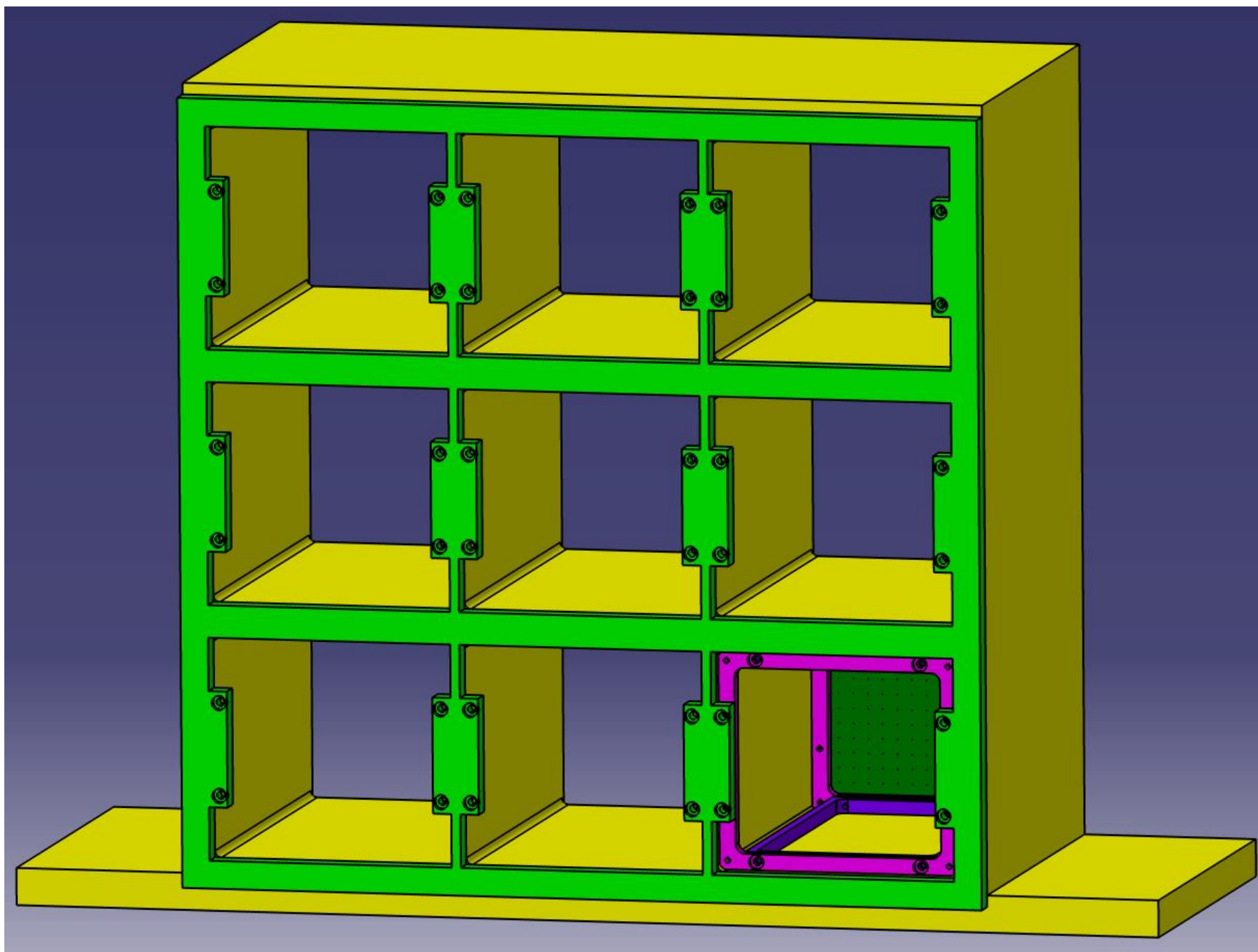


Struttura meccanica del piano focale per CTA: Disegno e realizzazione

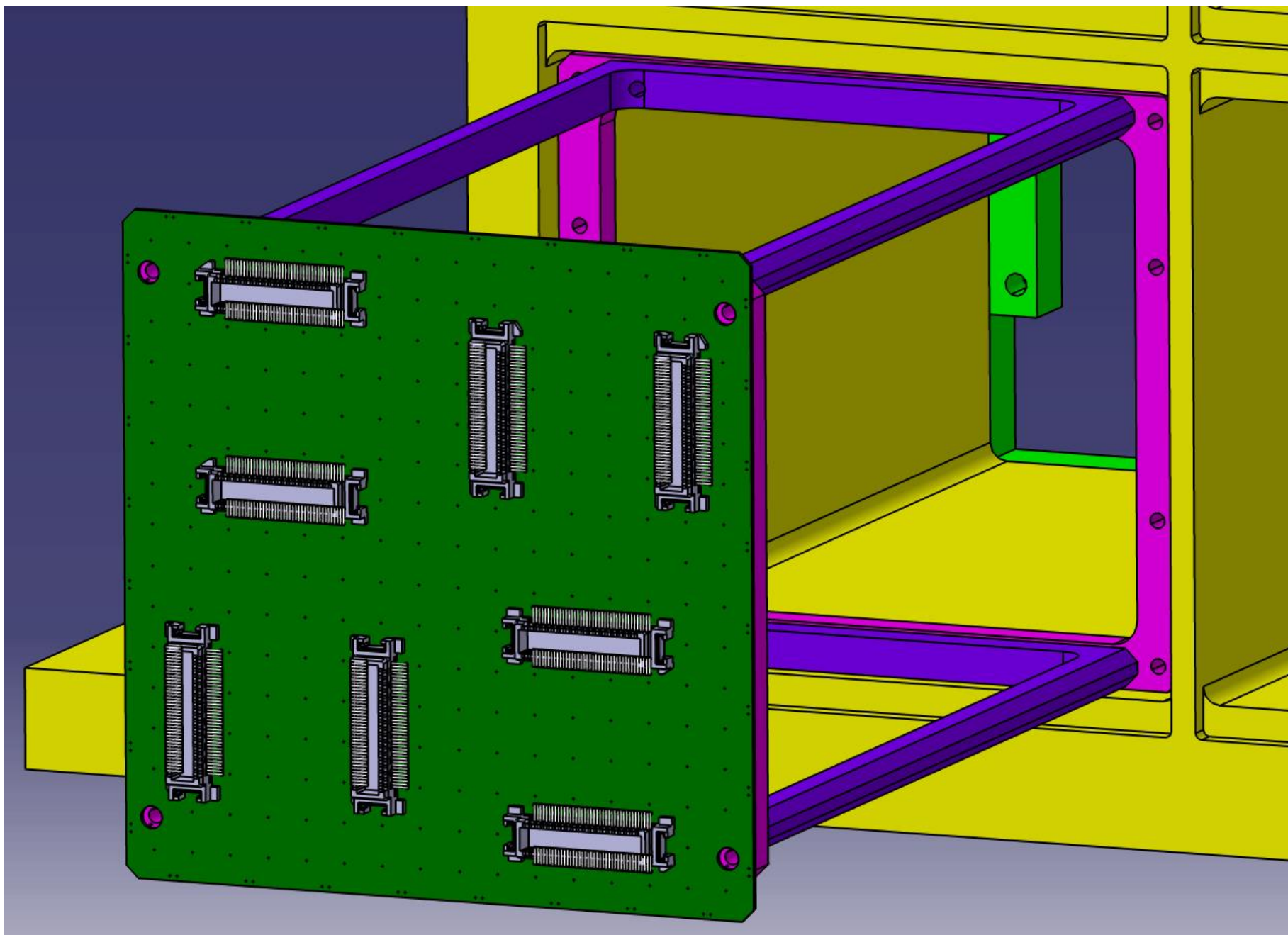
*S. Brasolin, F. Giordano, G. Giraudo,
R. Paoletti, P. Vallania*

Bari, 10-11/03/2015

Camera INFN – vista posteriore



Camera INFN – inserimento telaio nella griglia



Camera INFN – situazione al 18/11/2014 (Roma1)

- Struttura portante in alluminio (in giallo nel disegno) dedicata al raffreddamento tramite fori per la circolazione del liquido refrigerante
- Griglia di chiusura posteriore (in verde nel disegno) per il posizionamento a battuta delle cellette
- Struttura del telaio (in viola nel disegno) ad inserimento frontale (lato piano focale) con l'alloggiamento per il PCB di front-end (anteriormente) e back-end (sulle quattro pareti del telaio ortogonali al piano focale).

Camera INFN – definizione scheda

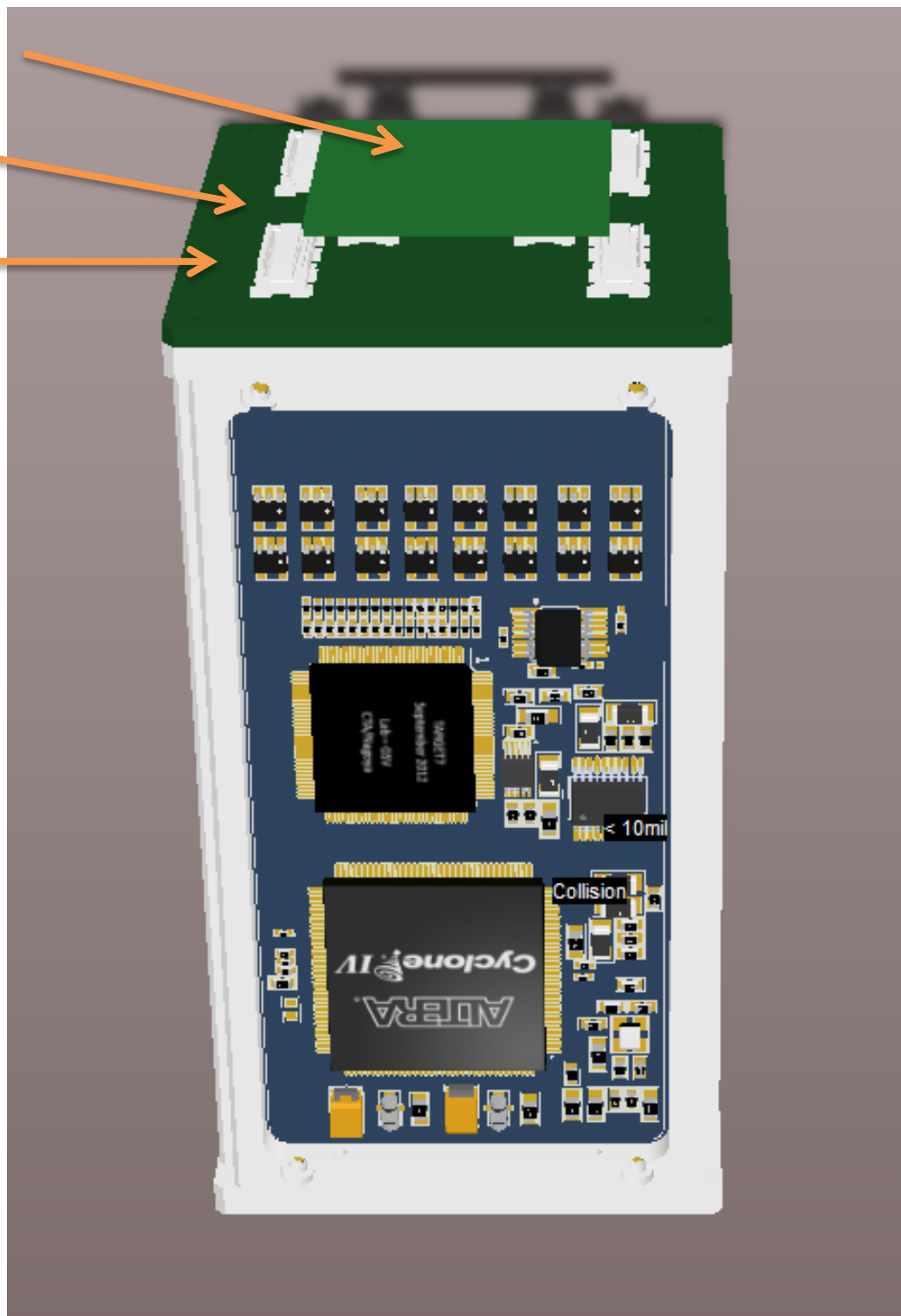
- Nuova scheda sensori per $16 \times 4 = 64$ canali
- Connettori sensori $\Leftrightarrow$ scheda HV
- Nuova scheda HV
- Connettori scheda HV $\Leftrightarrow$ scheda laterale
- Posizione preampli su scheda laterale
- Connettori scheda laterale $\Leftrightarrow$ backplane
- Nuova scheda backplane con logica di trigger tra schede laterali contigue

Nuova scheda sensori

Connettori sensori
e posizione

Scheda HV

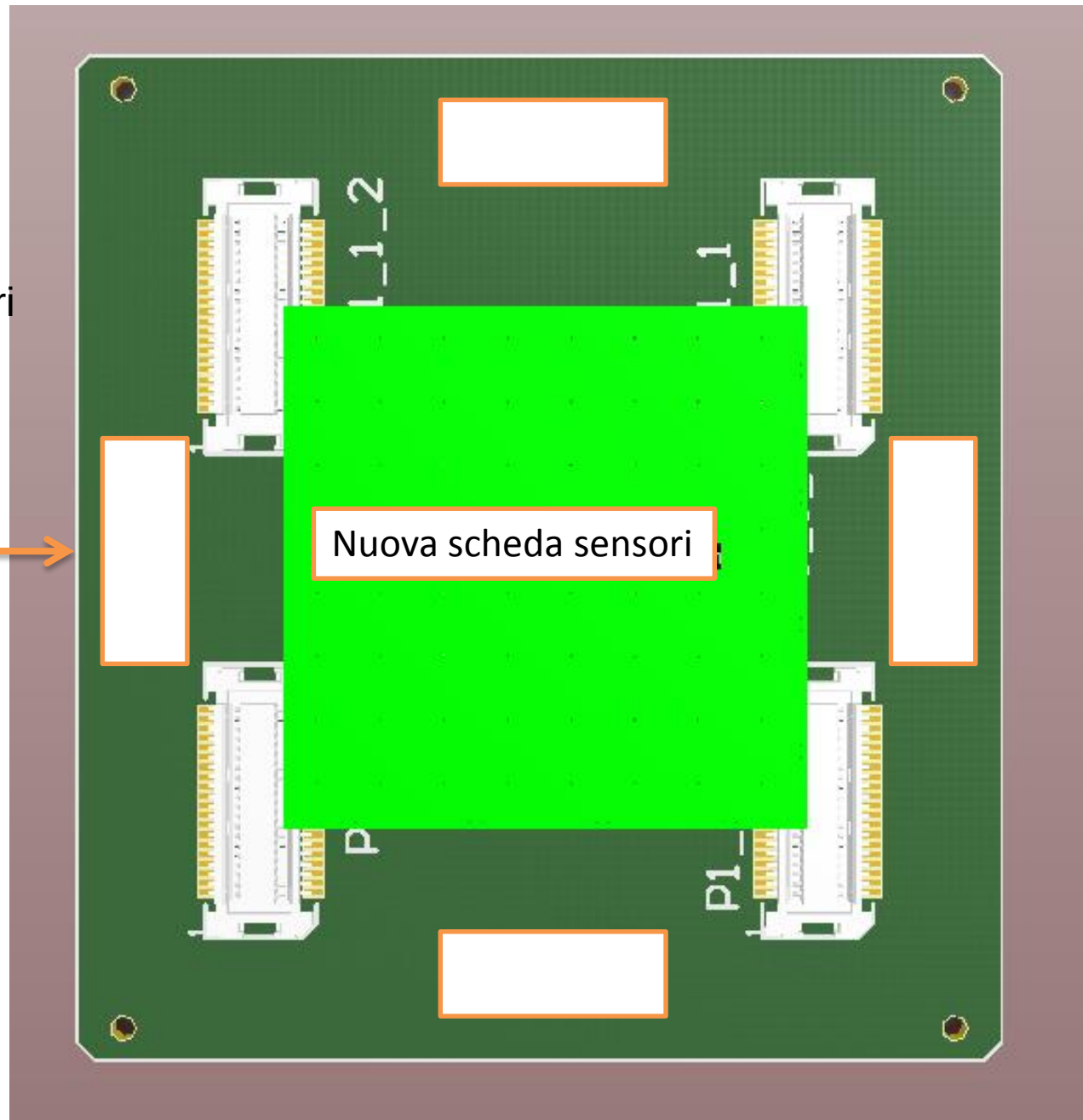
Scheda laterale



Scheda HV/sensori vista TOP

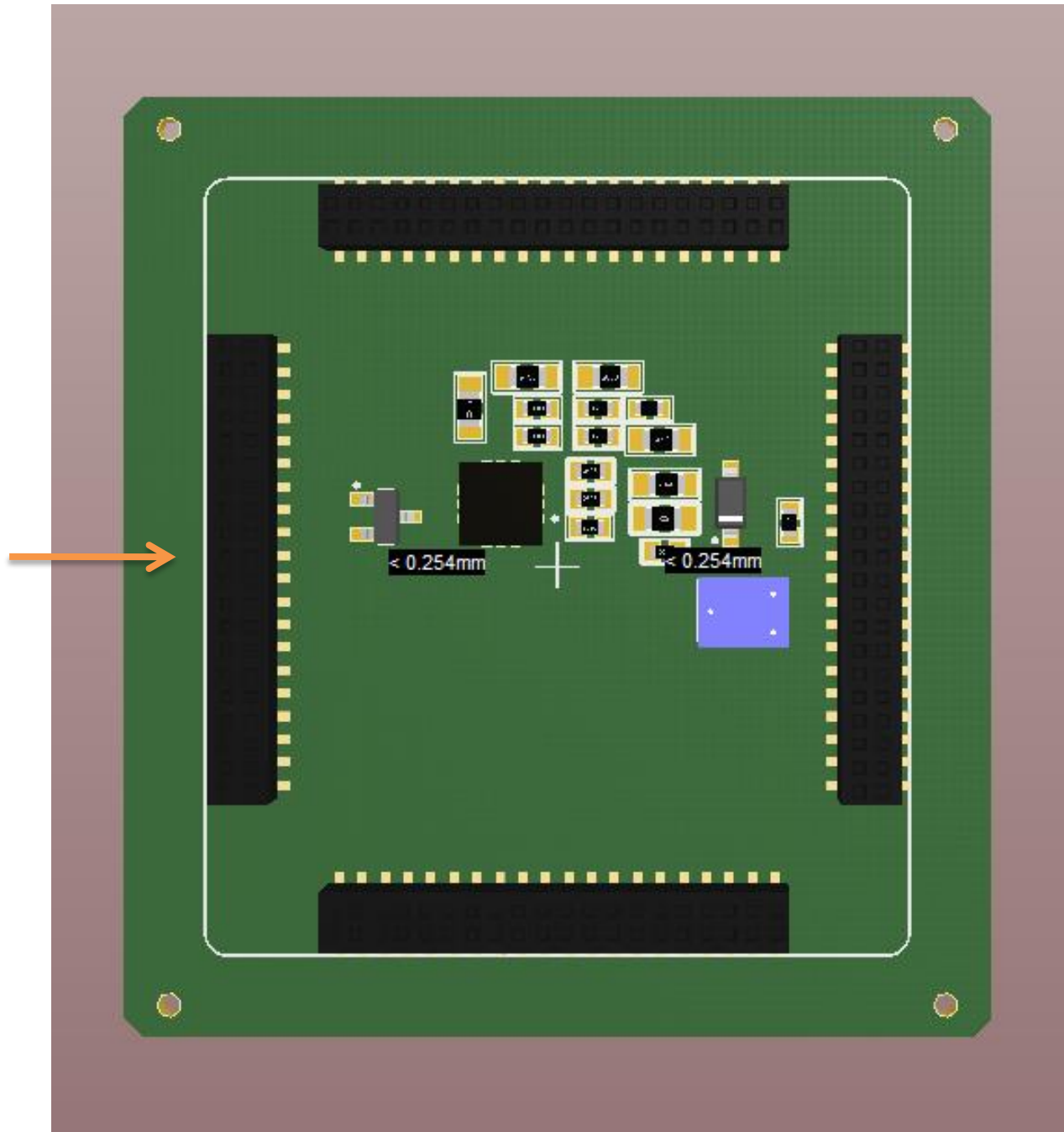
Connettori sensori
e posizione

Migliore
posizione?



Scheda HV/sensori vista BOTTOM

Scelta
connettori



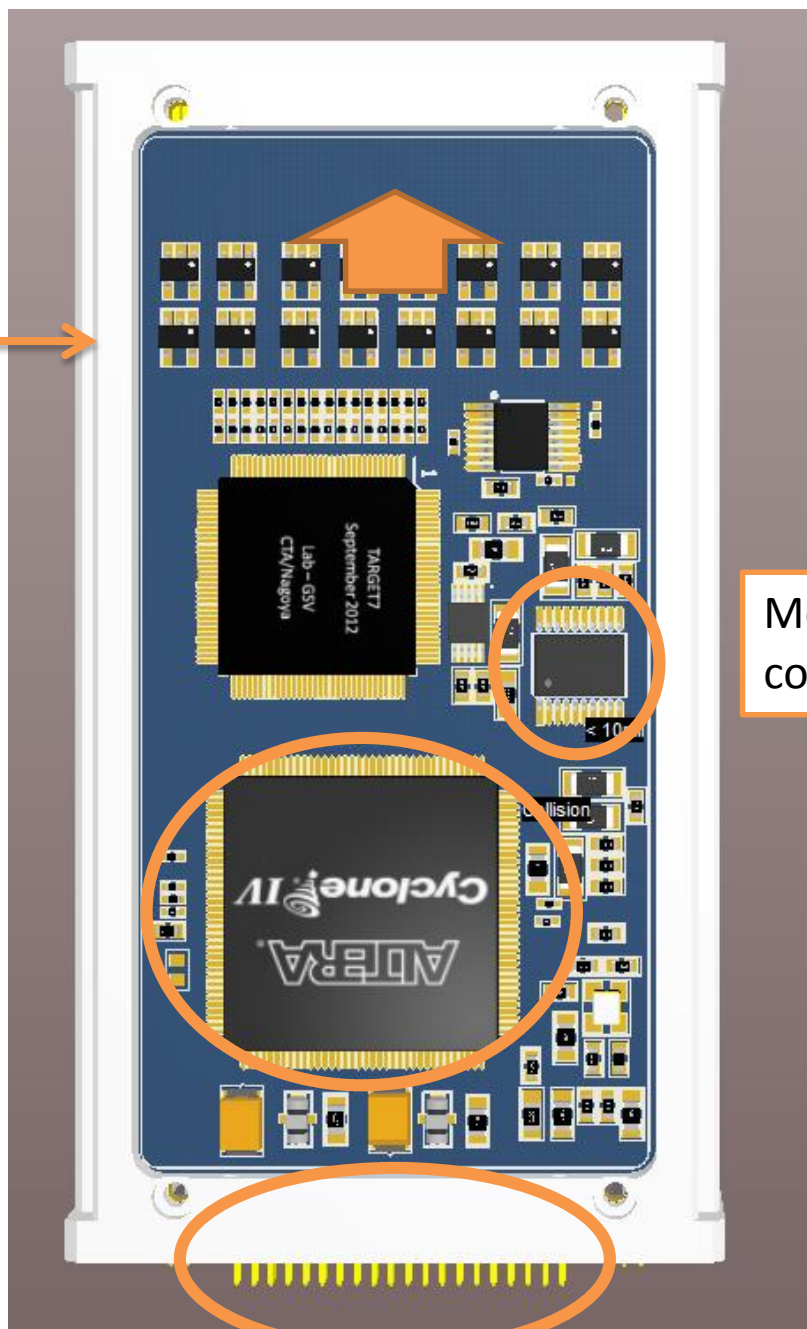
Scheda laterale

Posizione
preamplificatori
Da spostare più
in alto?

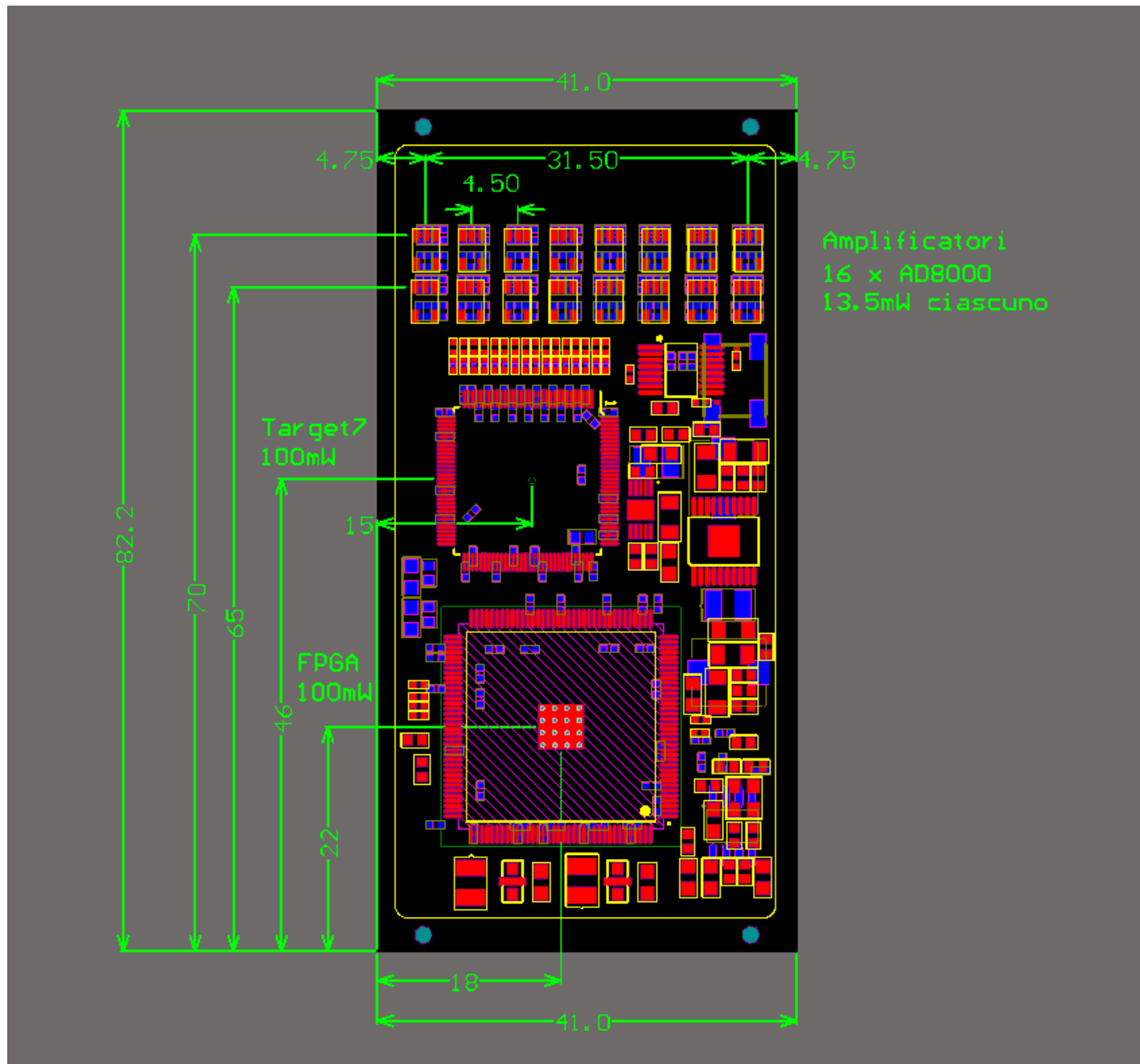
FPGA più piccola

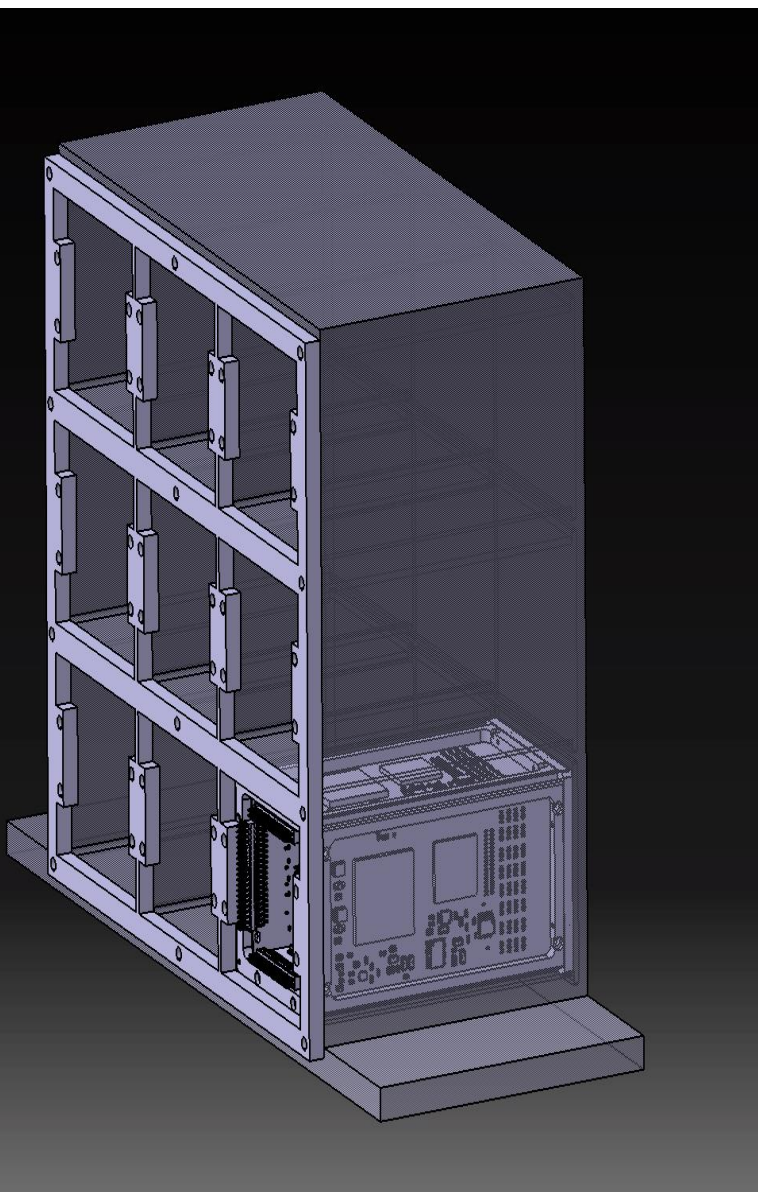
Memoria di
configurazione

Logica di trigger su backplane

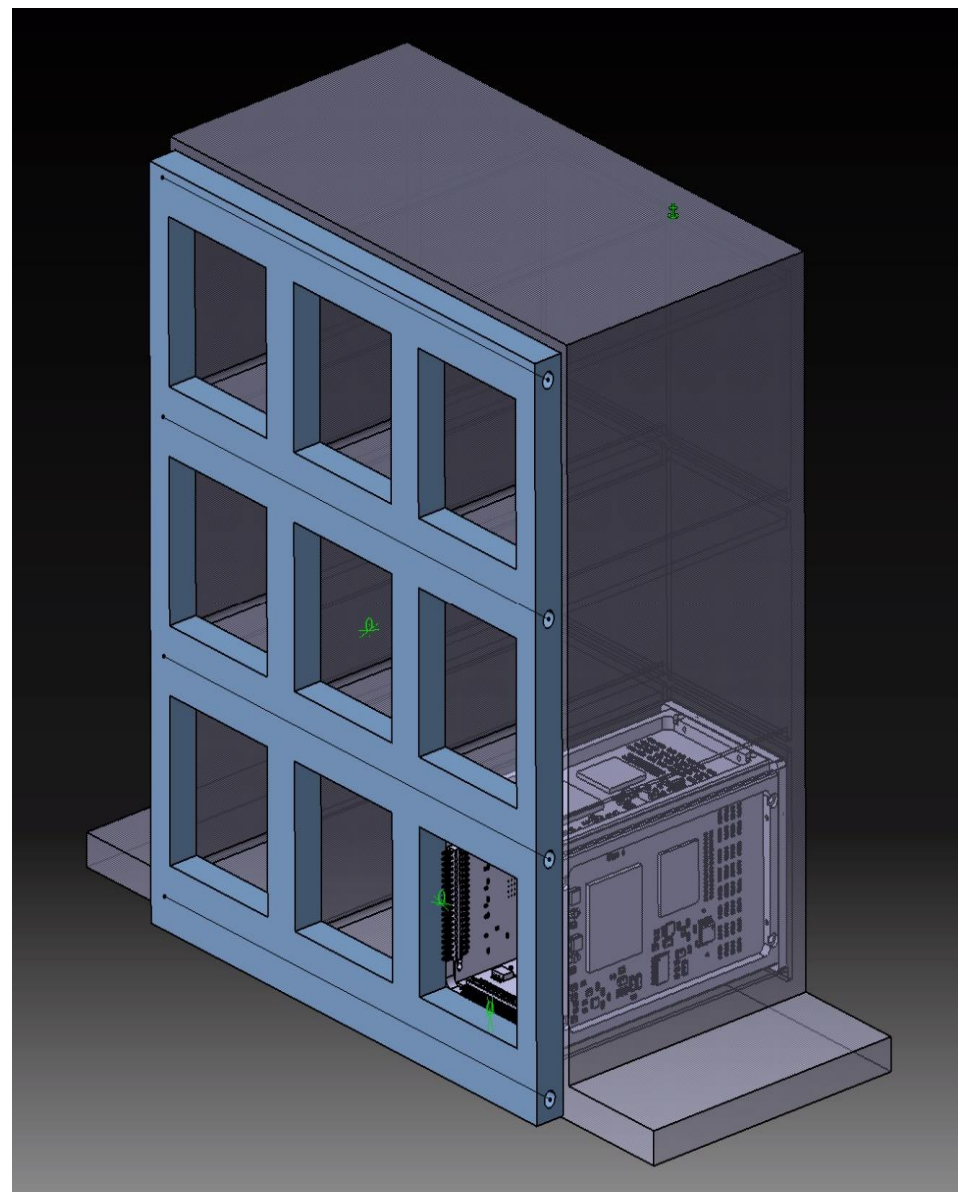


Camera INFN – definizione della dissipazione termica

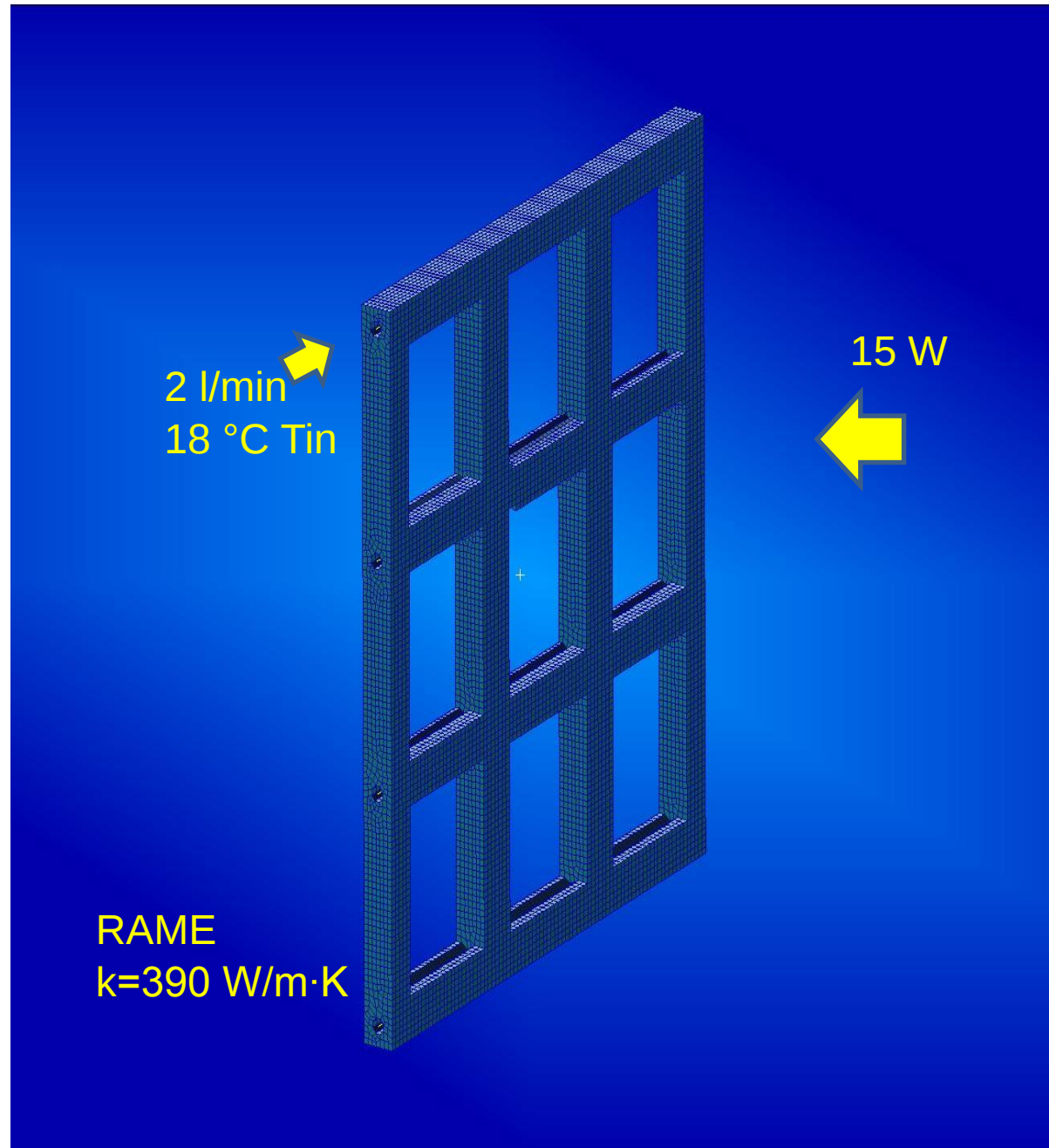


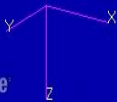


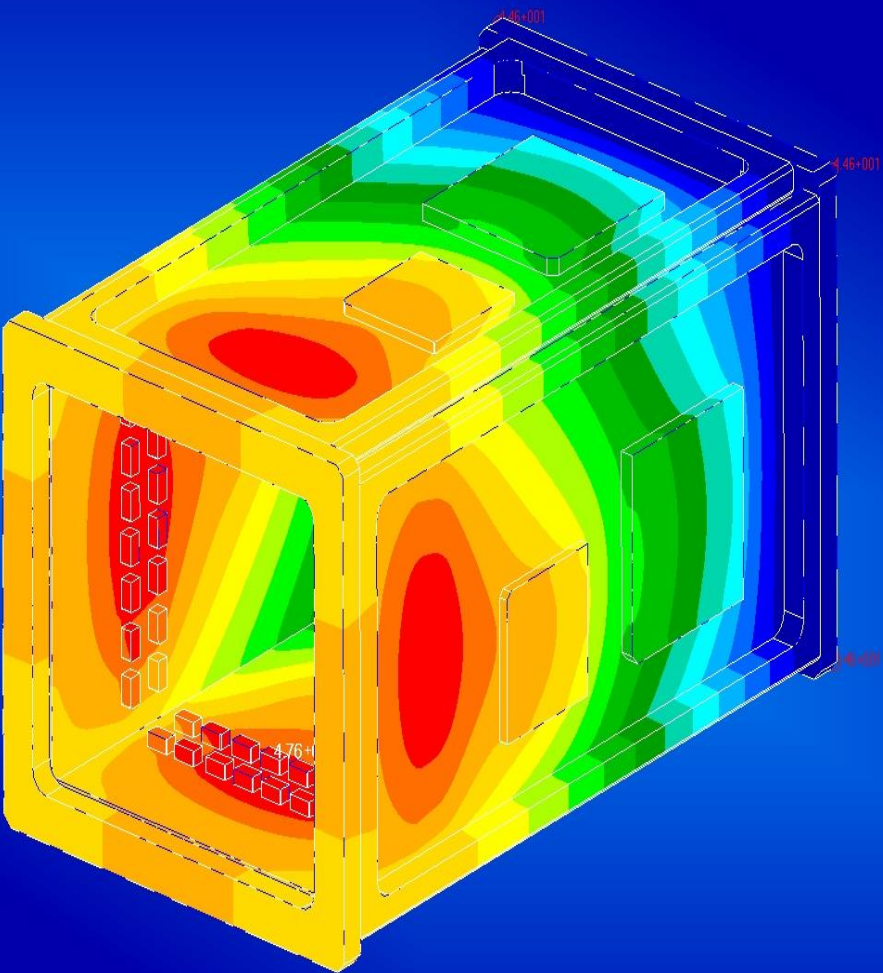
DISEGNO ATTUALE



PIASTA DI RAFFREDDAMENTO



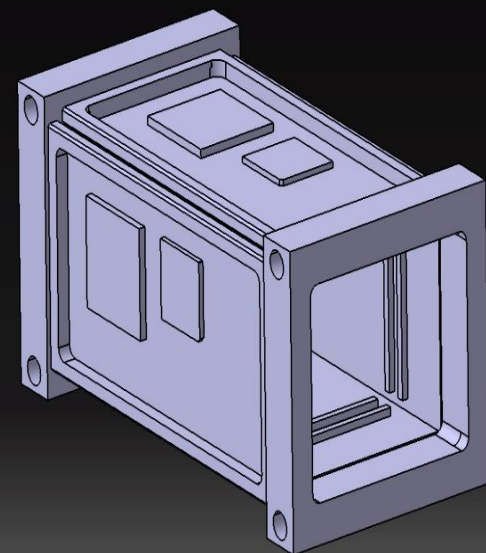
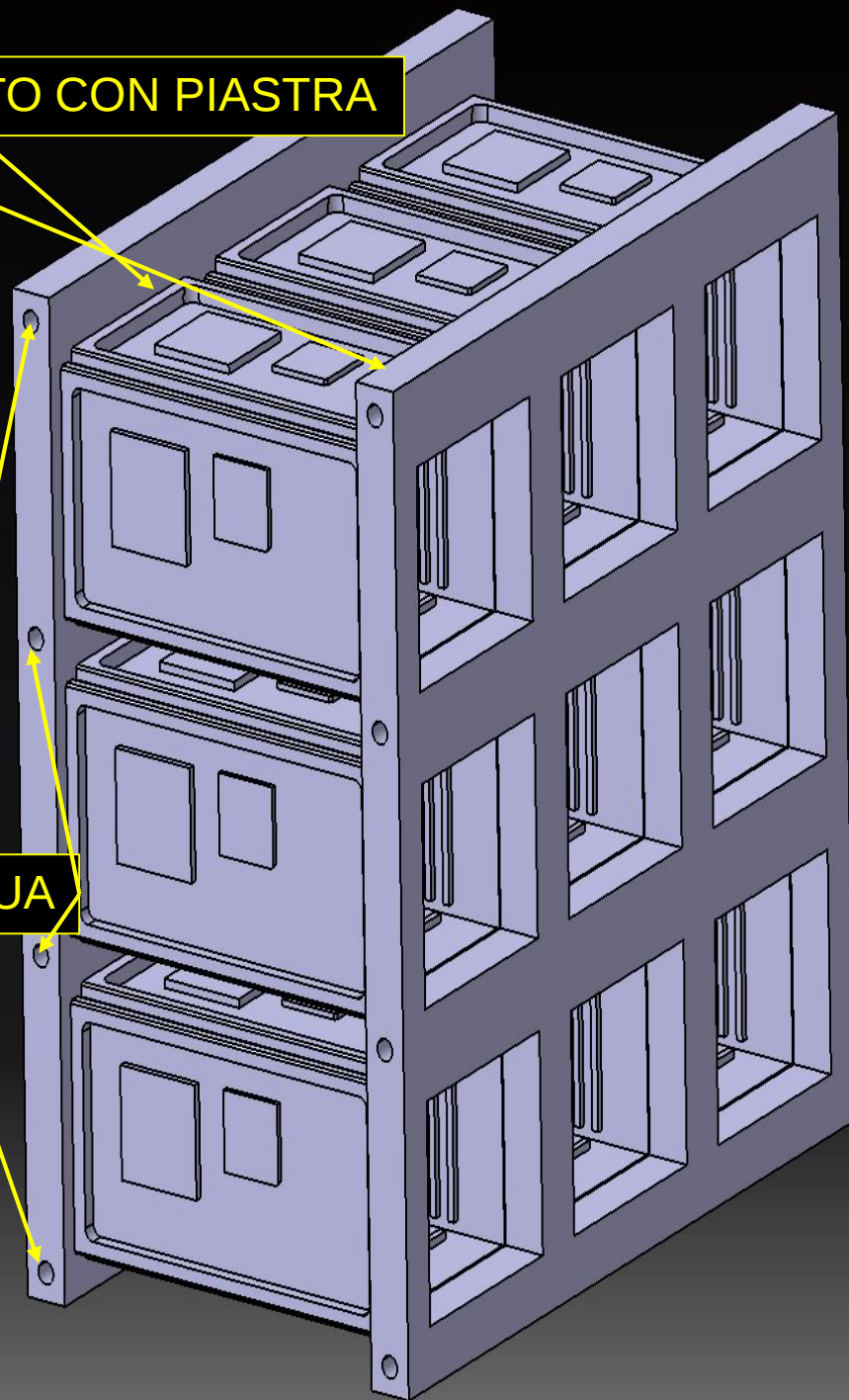


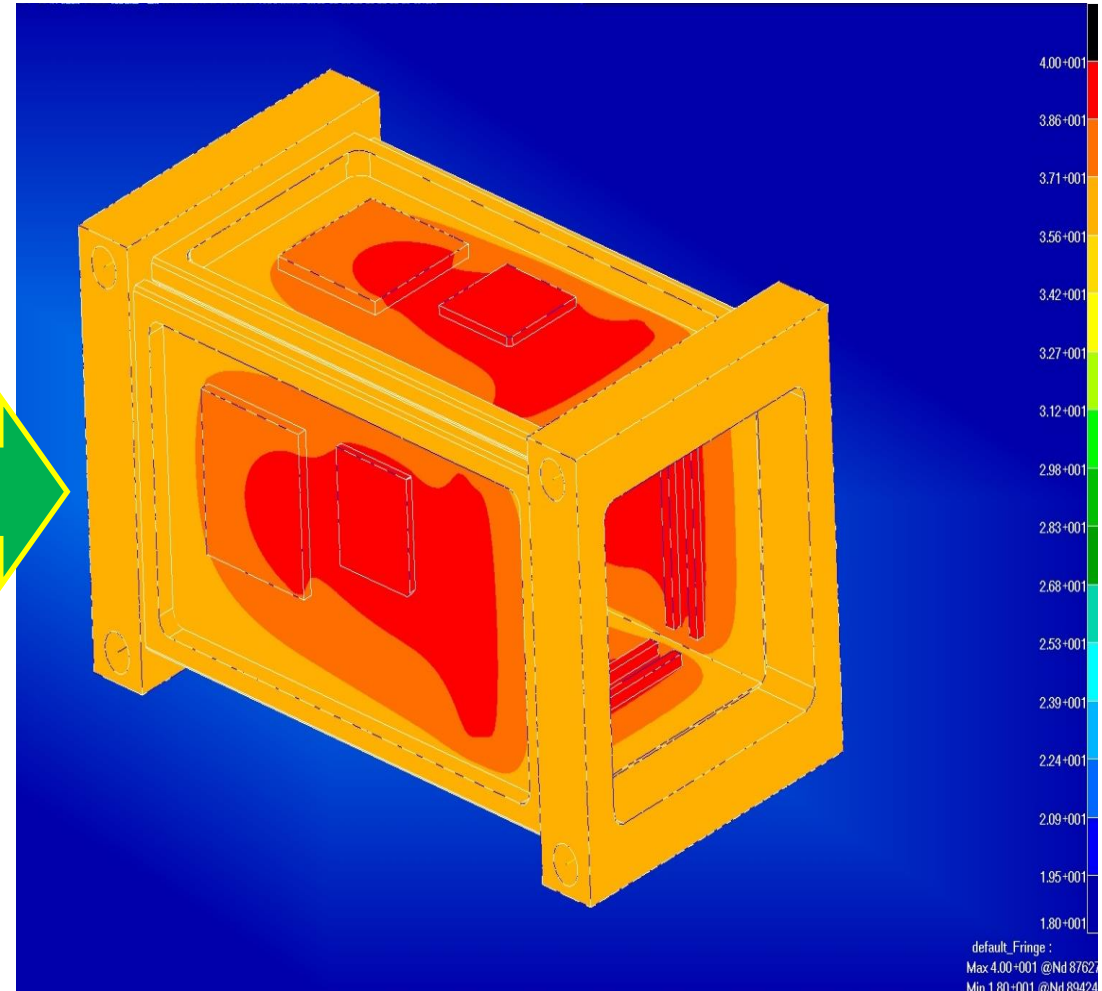
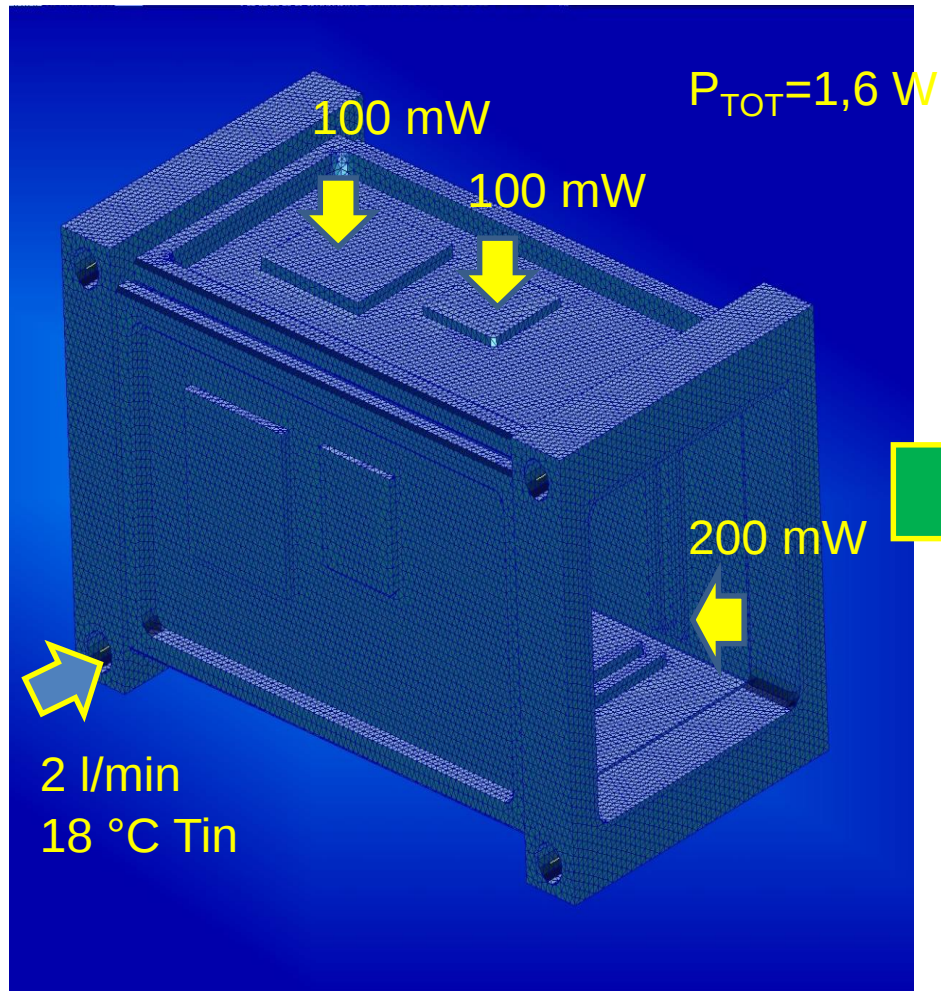


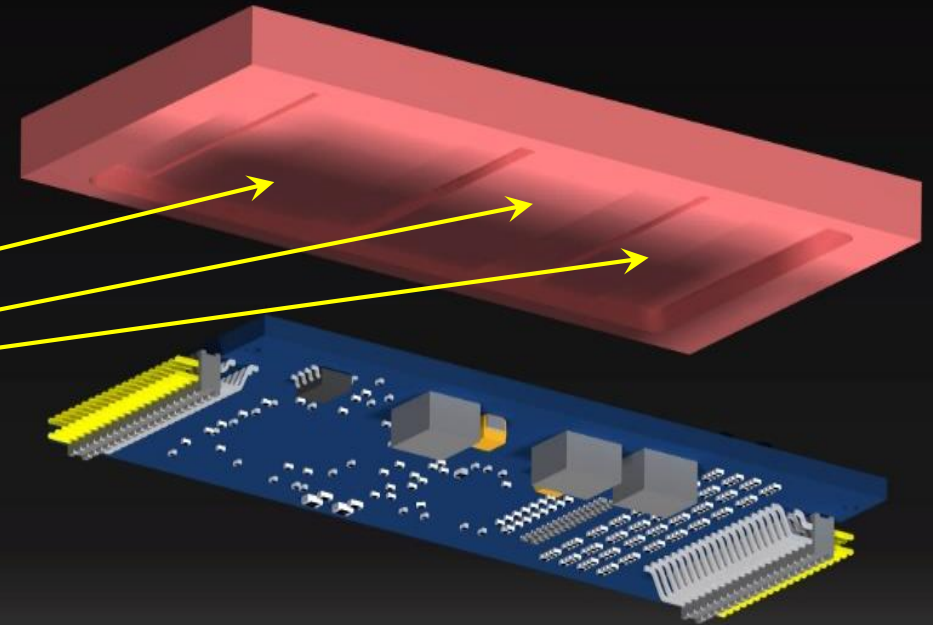
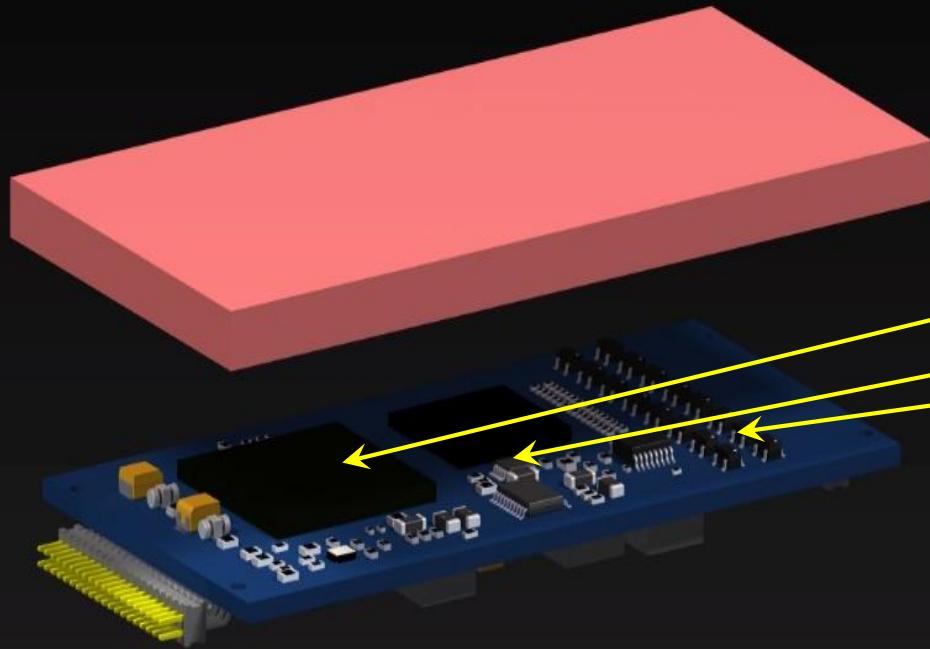
default_Fringe :
Max 4.76+001 @Nd 101728
Min 4.46+001 @Nd 72676

TELAIO A CONTATTO CON PIASTRA

4+4 FORI PER ACQUA







CONTACT BETWEEN COVER & COMPONENTS
THERMAL GREASE (i.e. PARKER CHOMERICS)

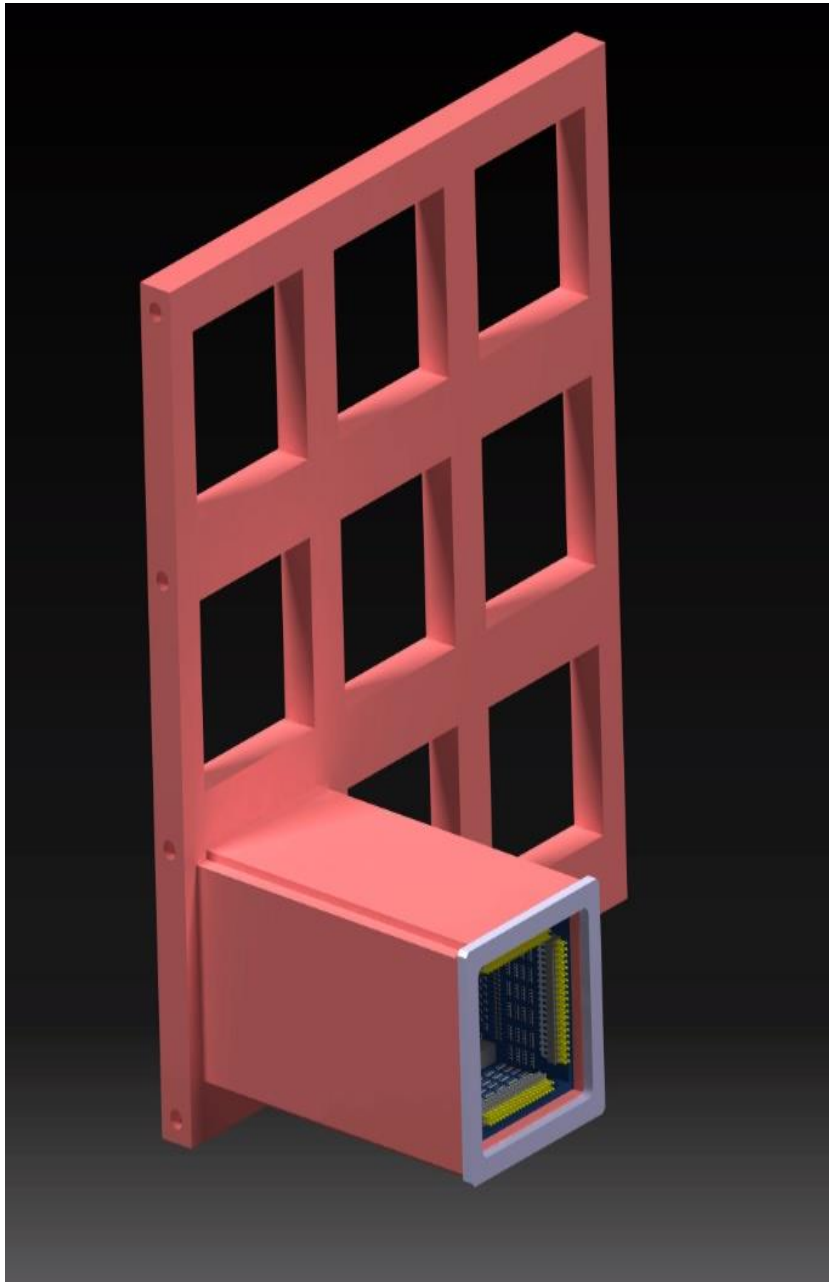
GEL 30G $h=3.5 \text{ W/m}\cdot\text{k}$

GEL 652 $h=3.0 \text{ W/m}\cdot\text{k}$

THERMAL PAD

(i.e. PARKER CHOMERICS)

THERM-A-GAP 976 $h=6.5 \text{ W/m}\cdot\text{k}$

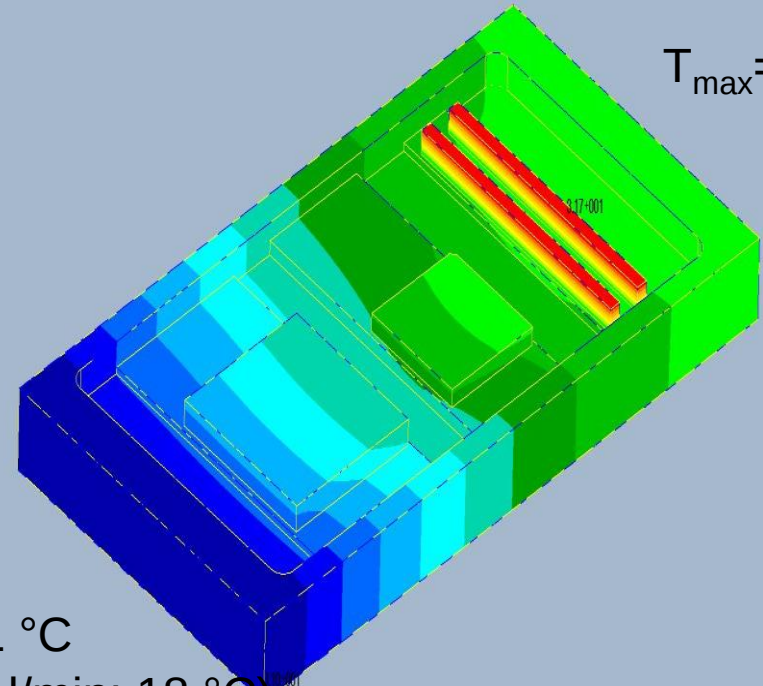


Patran 2013 64-Bit 06-Mar-15 10:36:59

Fringe: Default, A1 Non-Linear: 100. % of Load, Temperatures, , (NON-LAYERED)

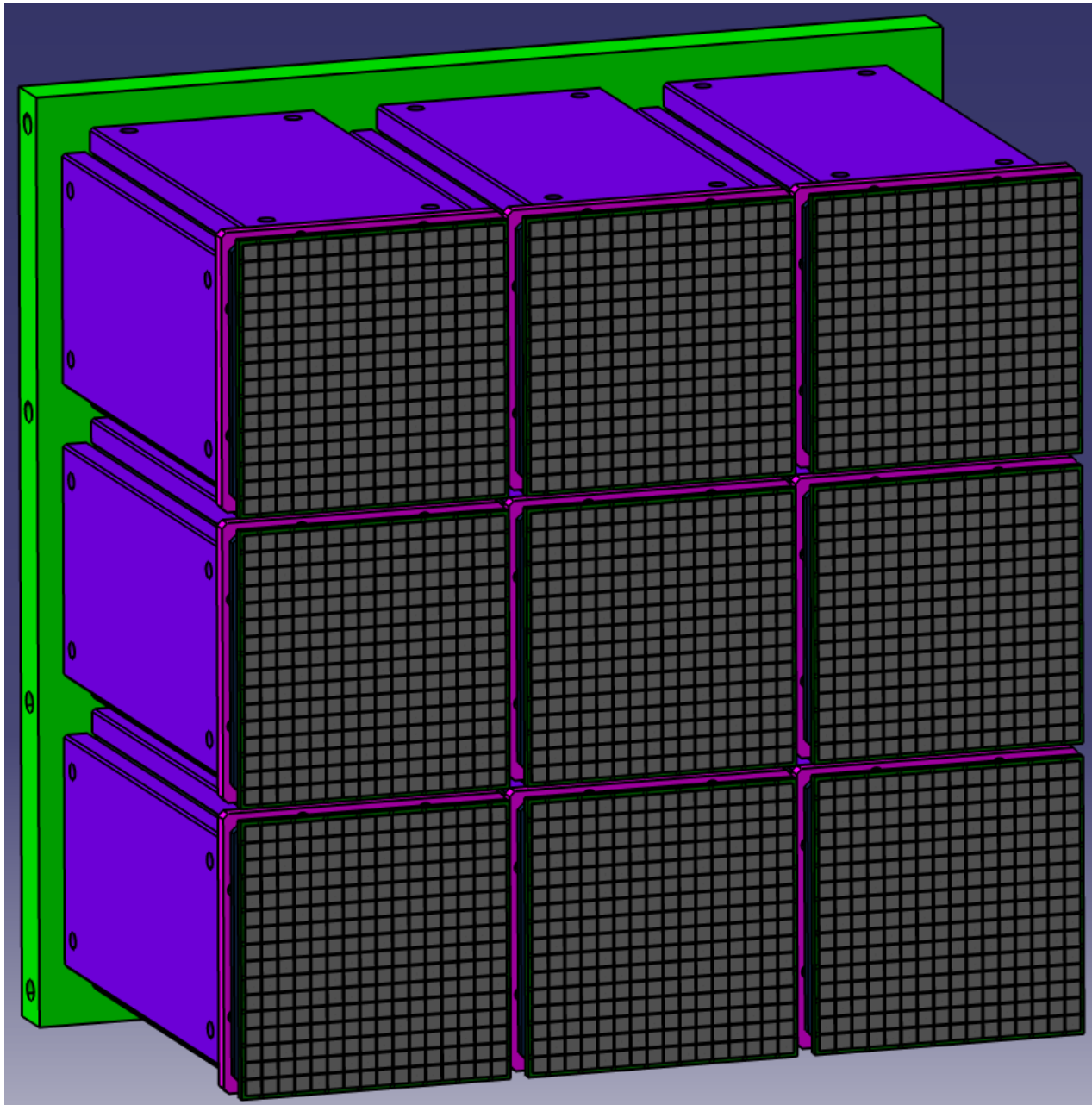
MSC Software

31 °C
(2 l/min; 18 °C)

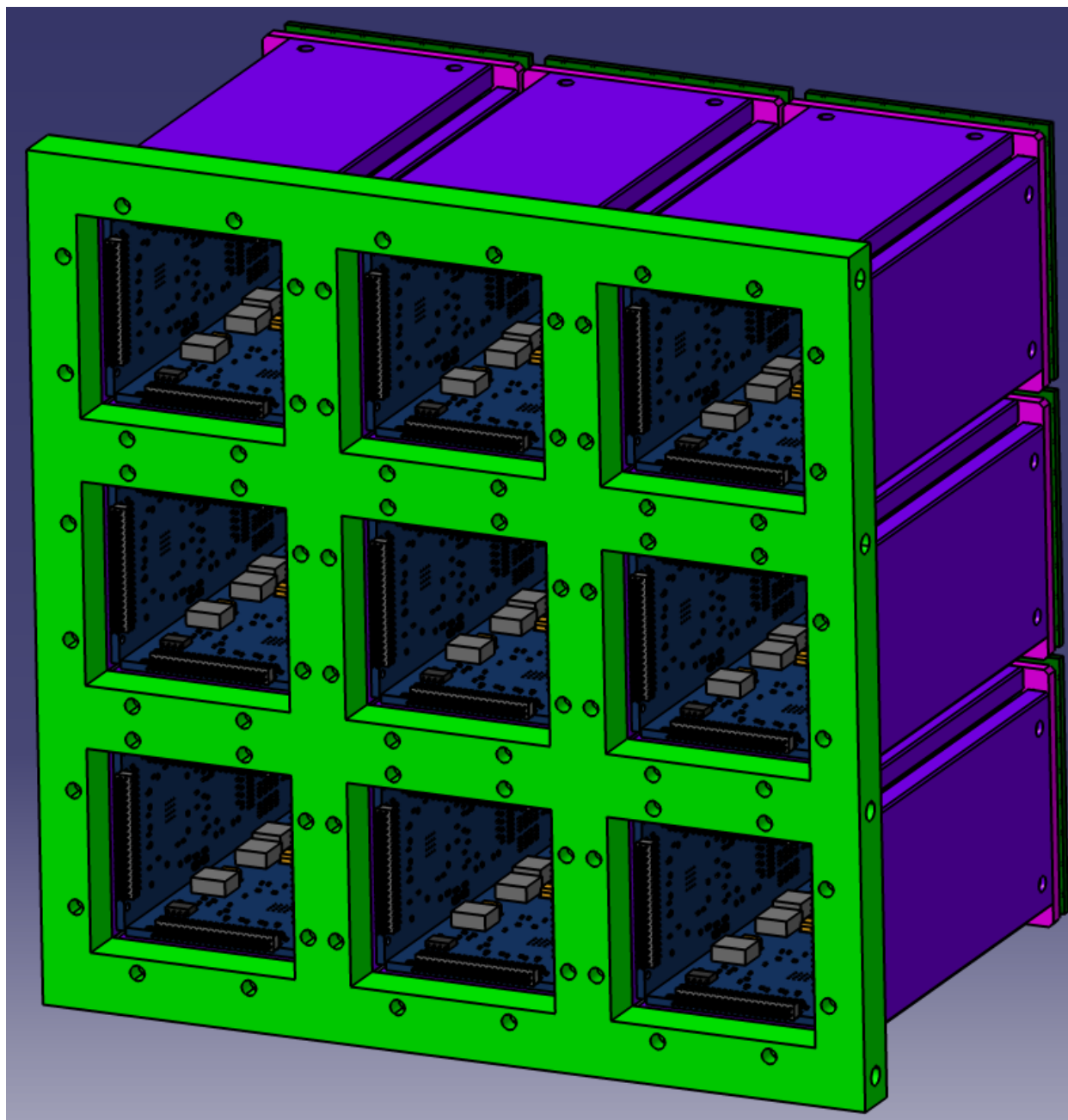


default_Fringe:
Max: 3.17+001 @Nd 14856
Min: 3.10+001 @Nd 23862

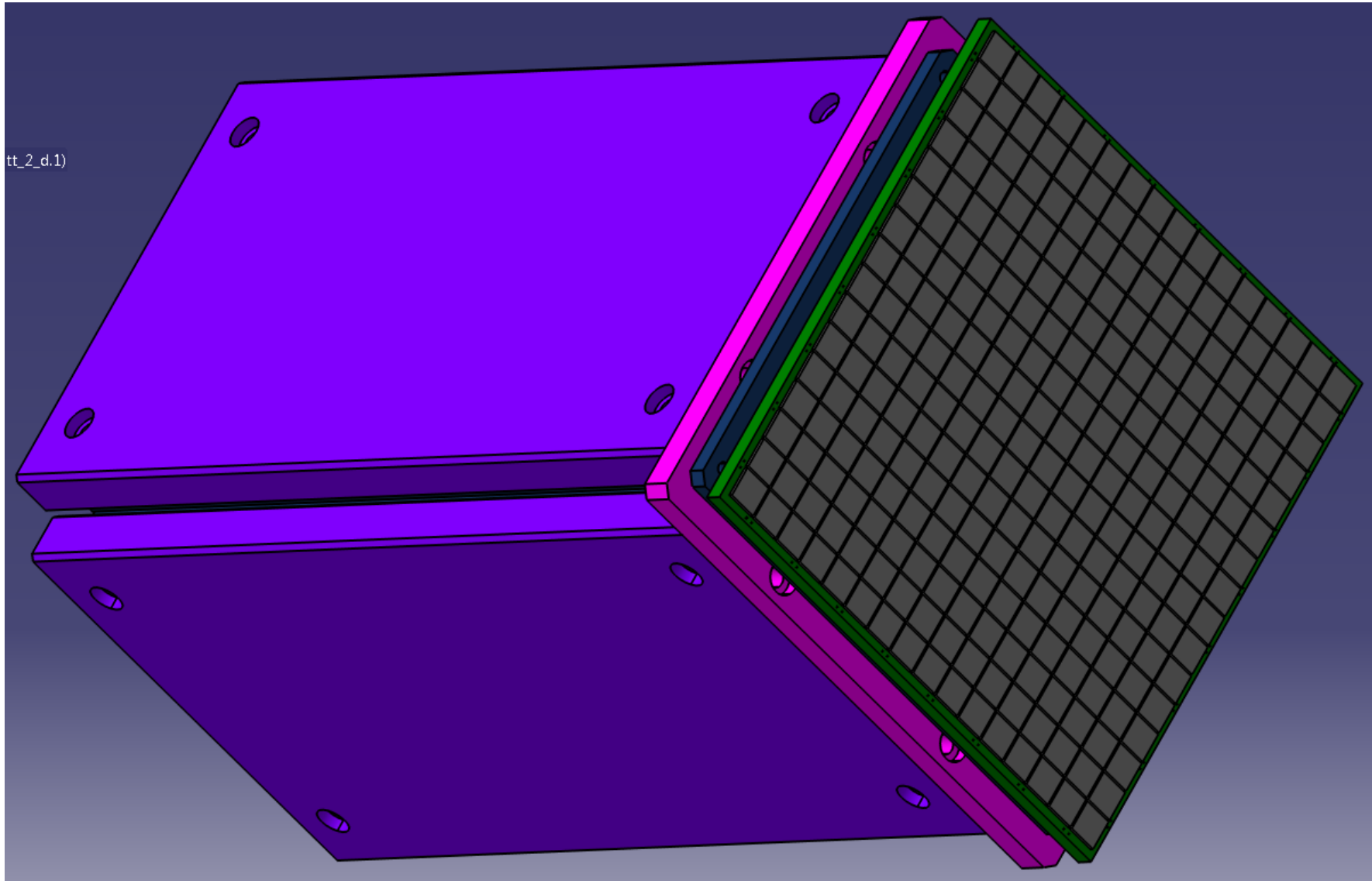
Camera INFN – vista anteriore



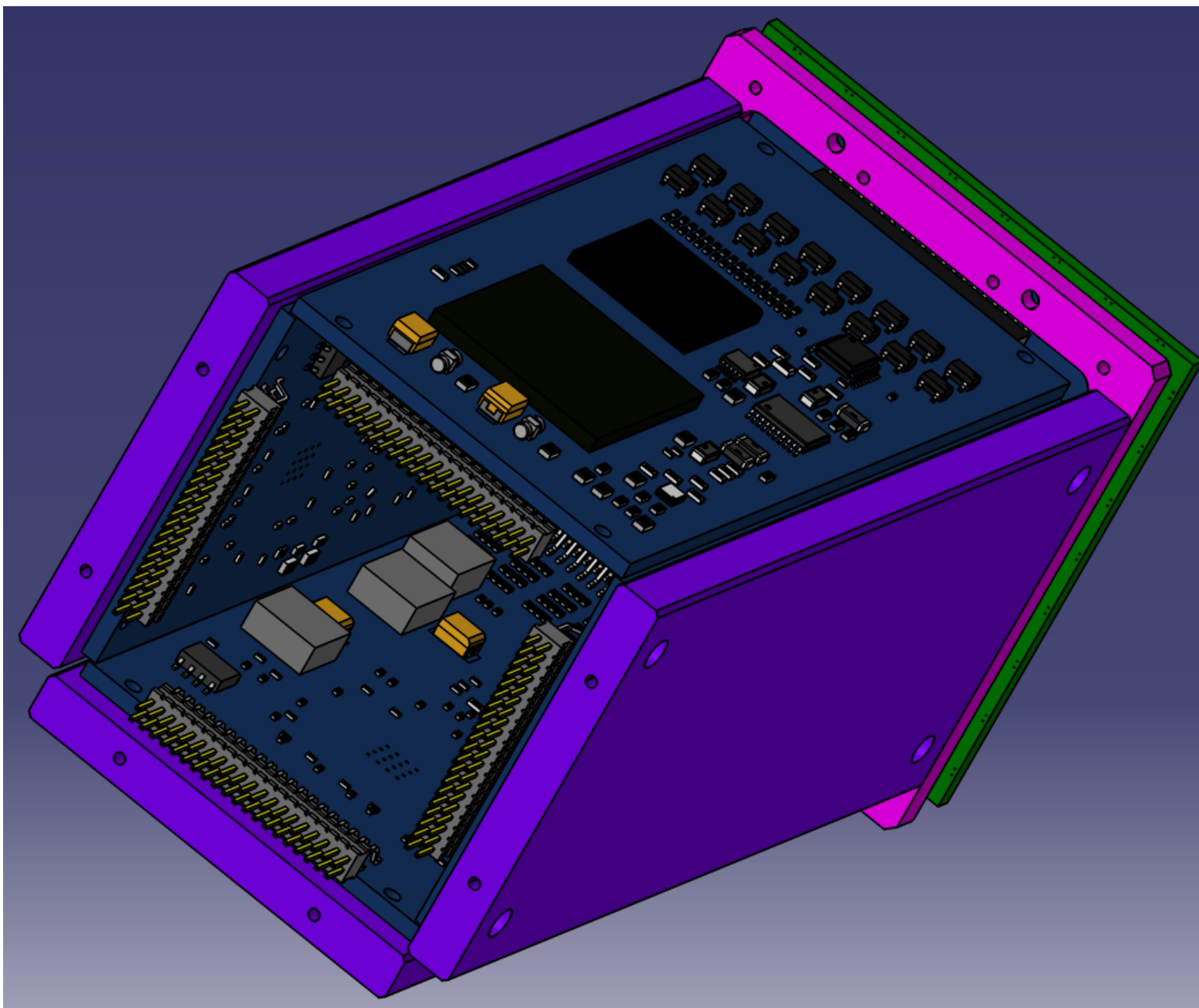
Camera INFN – vista posteriore



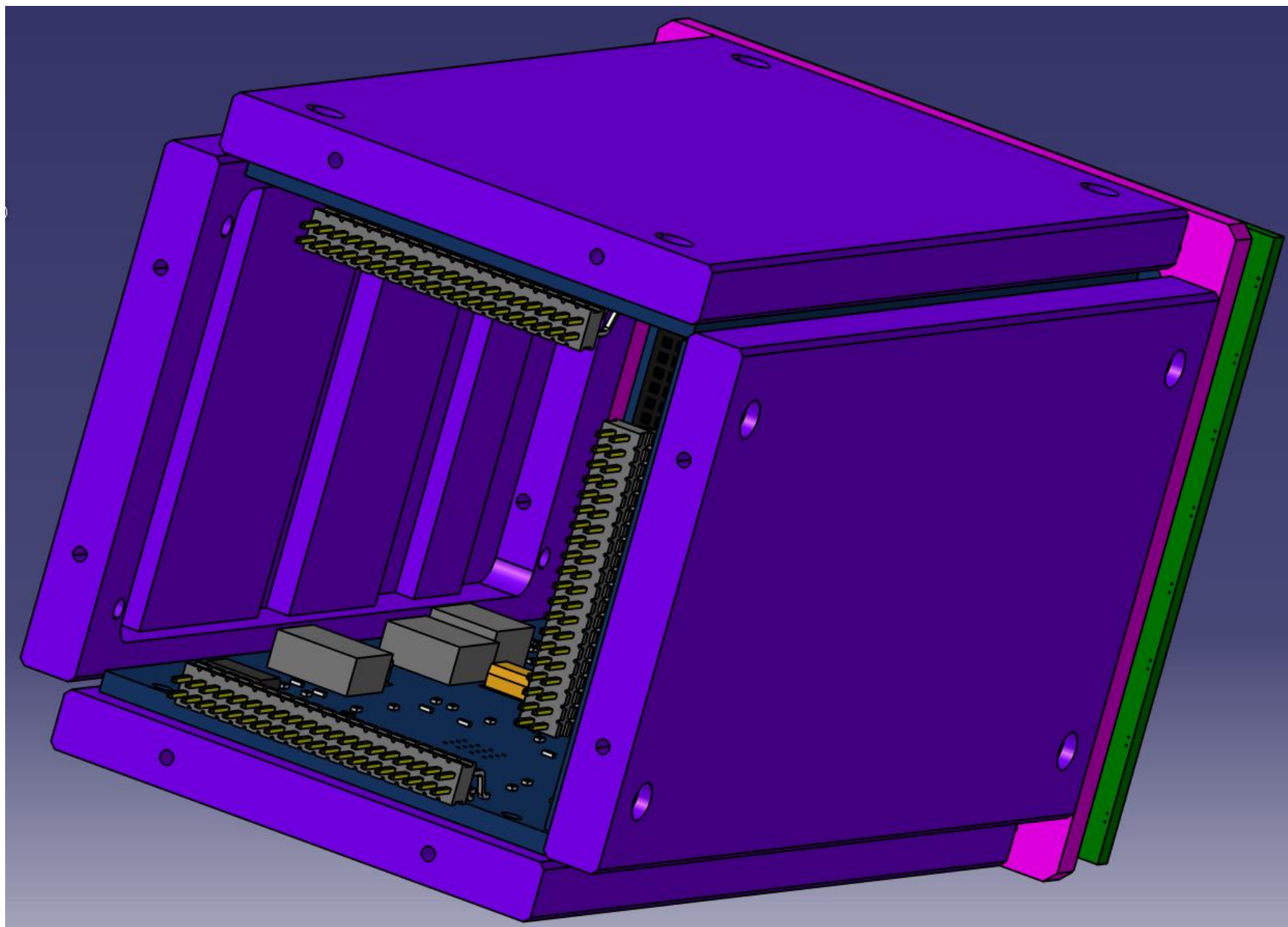
Camera INFN – modulo singolo



Camera INFN – modulo singolo (senza parete)



Camera INFN – modulo singolo (senza scheda)



Camera INFN

Passi successivi:

- Definizione degli ultimi dettagli (riduzione dello spazio tra i moduli da 5 a 2.5 mm)
- Realizzazione del primo prototipo (basso costo e limitato tempo per la realizzazione)