FALAPHEL Meeting

Simone Cammarata[1,2,3]

[1] Dipartimento Ingegneria dell'Informazione (DII), Università di Pisa, Via G. Caruso 16, 56122 Pisa, Italy

[2] Istituto Nazionale di Fisica Nucleare (INFN), Sezione di Pisa, L. Pontecorvo 3, 56127 Pisa, Italy

[3] Scuola Superiore Sant'Anna (SSSA), Istituto di Intelligenza Meccanica, Via G. Moruzzi 1, 56127 Pisa, Italy

Correspondance: simone.cammarata@phd.unipi.it

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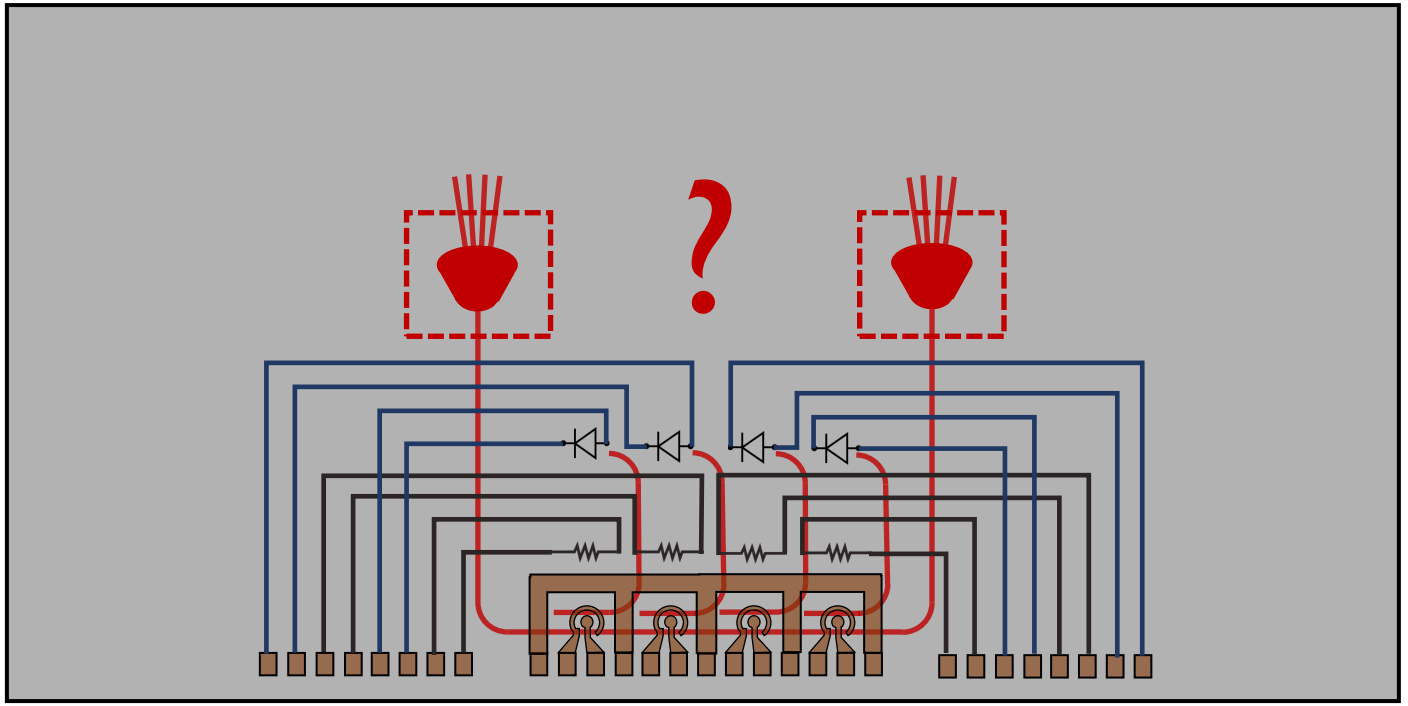
PIC v2 – Overview

- *N*-WDM demonstrator with *all-pass* Imec's RMs (no feedback!)
- *N*-WDM demonstrator with *add-drop* custom RMs. **Achtung!** Design should be done from scratch: test structures give only limited info for this type of RMs

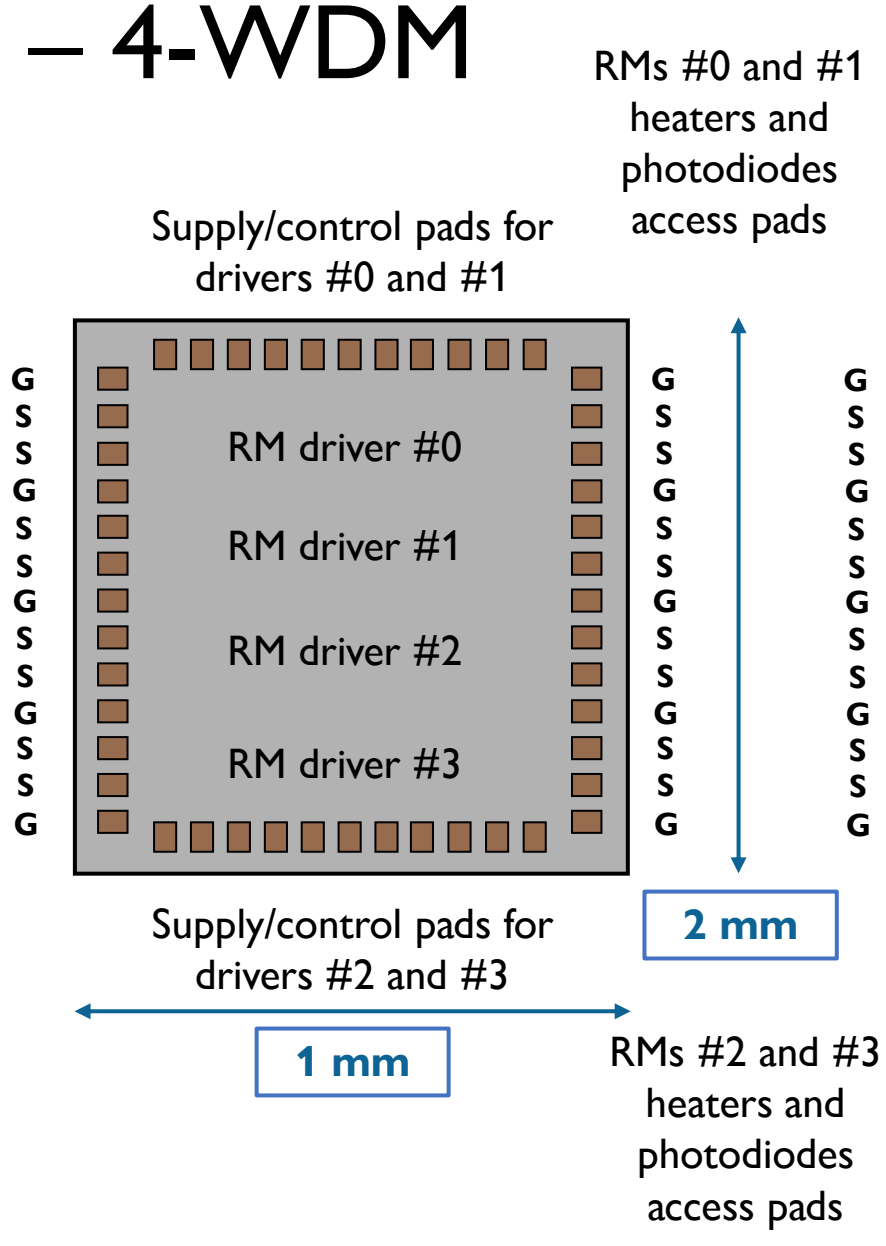
1. Decision to take: *N* = 2 or 4 ?
2. Decision to take: integrated or external wavelength MUXs ?

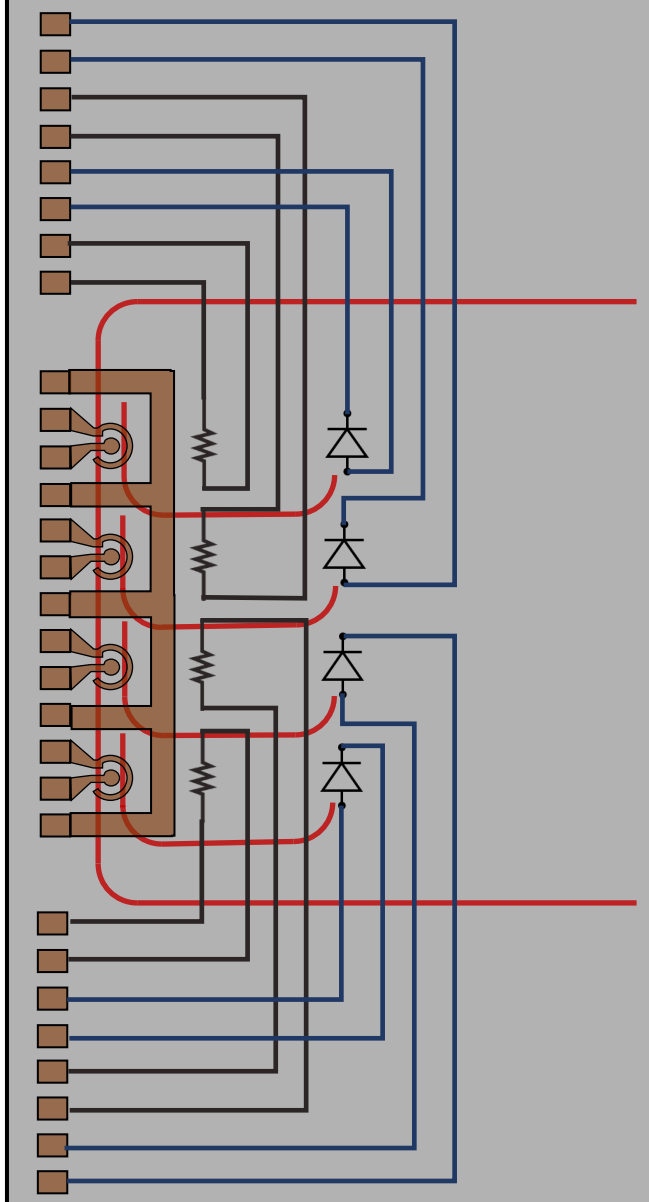


- **Achtung!** Complete demonstrators can presumably stay only on the "long" PIC side.
  At most 2 (4) complete 4-WDM (2-WDM) structures can be accommodated on the PIC

PIC-EIC Integration – 4-WDM

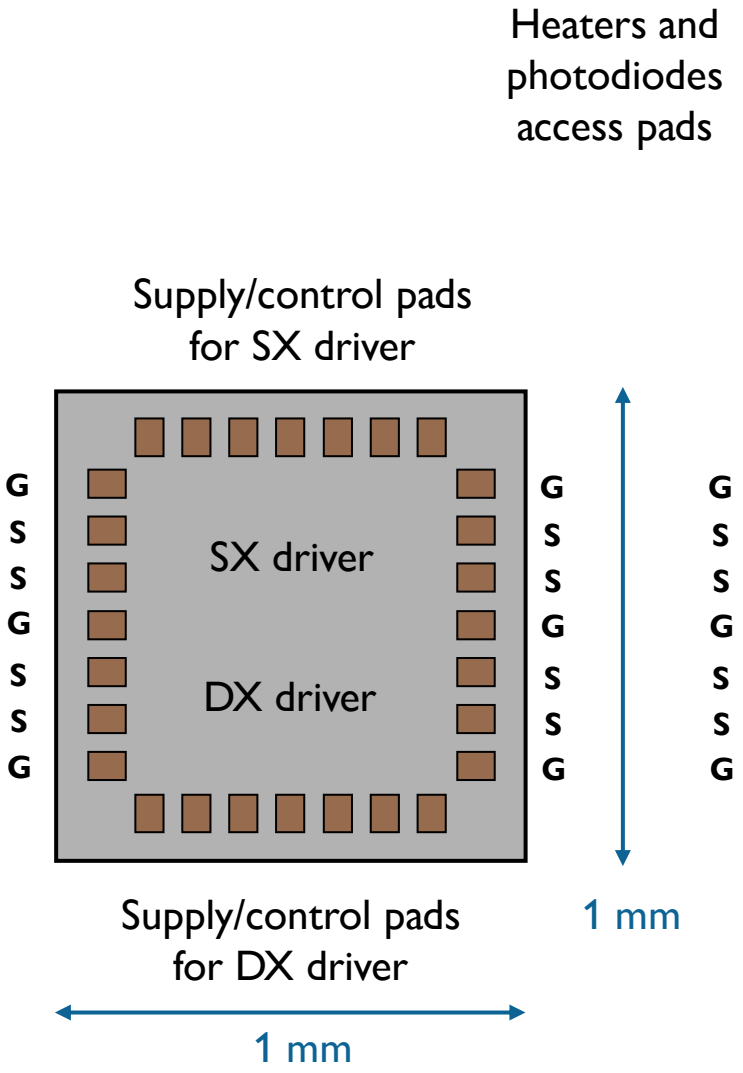
- Differential driver architecture to double effective peak-to-peak voltage swing on RM
- RM as differential load on a CML-like output stage requires signal-signal (SS), i.e., anode-cathode, pad configuration
- **GSSG** pattern preferred to limit RM-to-RM cross-talk
- **4-WDM** demonstrator: 4 drivers in a single EIC (flip-chip packaging constraints permitting)

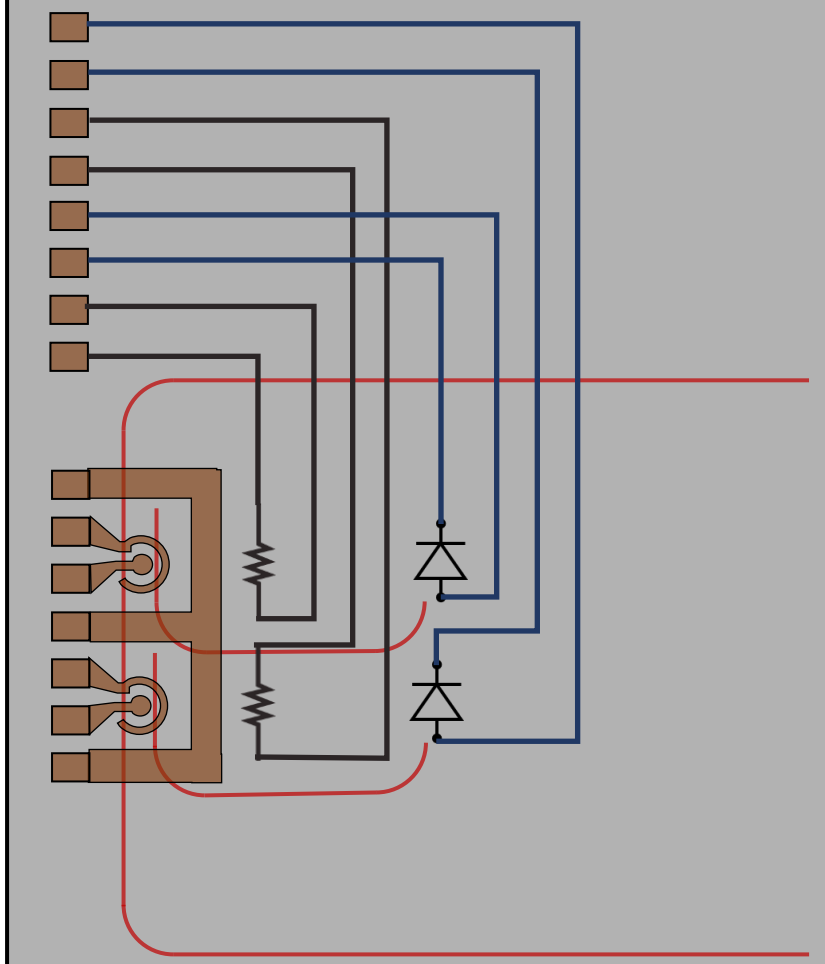




PIC-EIC Integration – 2-WDM

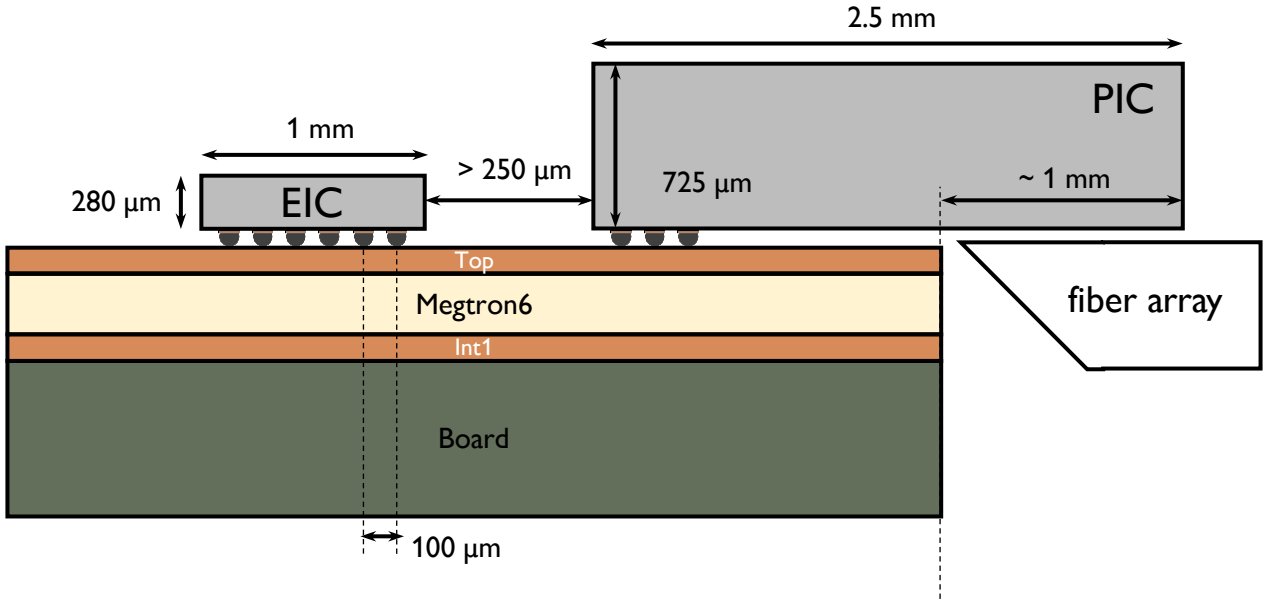
- Differential driver architecture to double effective peak-to-peak voltage swing on RM
- RM as differential load on a CML-like output stage requires signal-signal (SS), i.e., anode-cathode, pad configuration
- **GSSG** pattern preferred to limit RM-to-RM cross-talk
- **2-WDM** demonstrator: 2 drivers in a single EIC



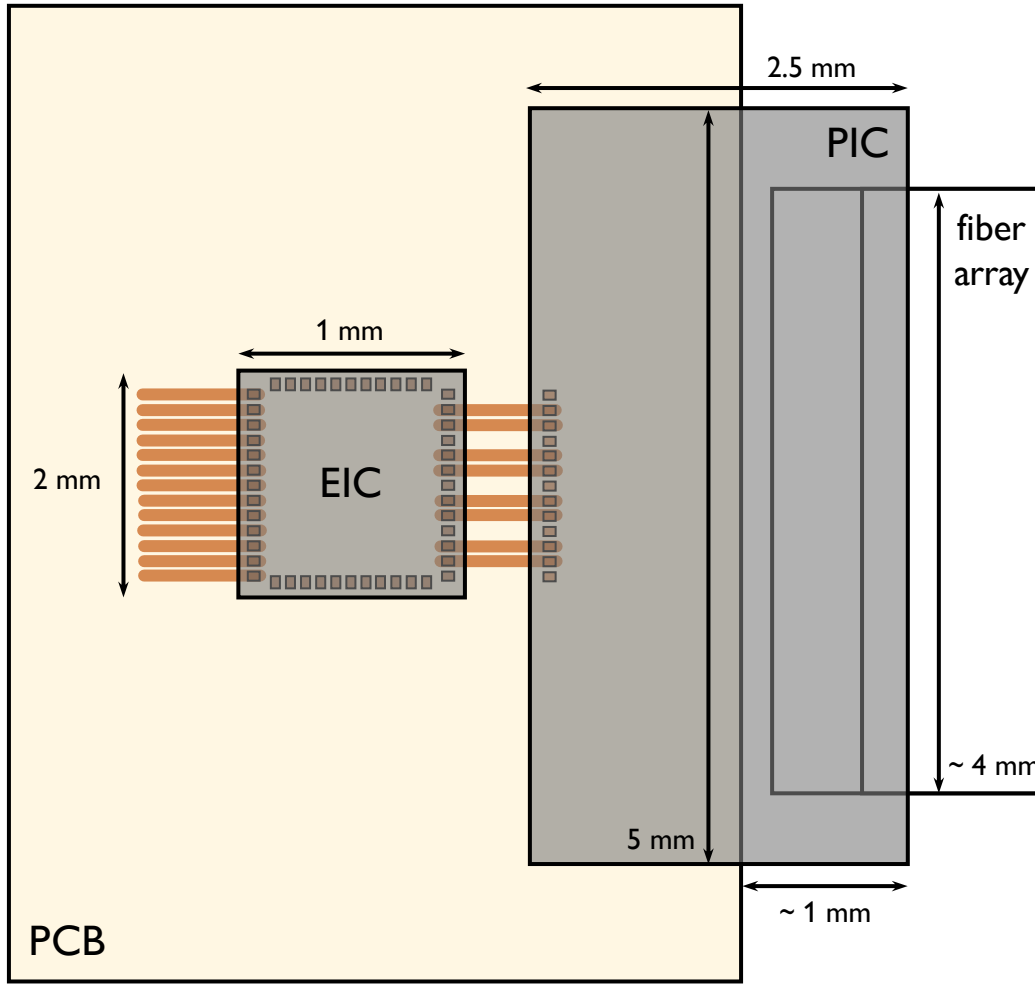


2.5-D RF-PCB – Single-bumping

Side view



Top view



- **Interposer-free** flip-chip design
- Au stud-bumping (CamGraphic) + solder jetting (Valencia) + die attach (CamGraphic)
- Viable solution also for some devices included in the current PIC

DEPARTMENT OF INFORMATION ENGINEERING

UNIVERSITÀ DI PISA

Thanks for the attention

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