



Sol Wafer Procurement

3D/Active edge sensors with FBK

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Indico:

<https://agenda.infn.it/conferenceDisplay.py?confId=9053>

Questions to IceMos 1/2

- Questions prepared by Gian-Franco and Maurizio, answers from Hugh Griffin from IceMOS contacted by Nanni.

1. How much is the minimum thickness of the bonding oxide layer? (We aim at having it as thin as possible)

Minimum oxide thickness = 2000 Å.

2. Could the minimum oxide thickness be achieved by having only the sensor wafer oxidized, or would both wafers be oxidized anyway?

The IceMOS standard process is to oxidise only one wafer – usually the handle. But we do have options to oxidise the handle or device wafer, or both! Depending on the full SOI specification. What buried oxide thickness do you require?

3. Is the bonding oxide thermally grown?

Yes, thermal oxide.

4. Is the total thermal budget used for wafer bonding very high (in terms of temperature and/or time)?

The wafer bonding thermal budget – 1200 °C, 1 hour.

5. Which is the minimum temperature that can be used?

**Minimum temperature under standard process conditions – 1150 °C.
What is the anneal temperature that you require?**

6. Can we have a low-dose ($\sim 10^{12} \text{ cm}^{-2}$) boron layer (p-spray) implanted at the bottom of the sensor wafer?

Buried implant layer (at bond interface) – yes, no problem.

7. Can you secure a given doping concentration profile for this layer in the delivery configuration?

Our stated process conditions (in terms of thermal budget) will not change. In this case, the doping profile will be stable – but this is not something that IceMOS can provide data on.

8. Can you measure the resulting doping profile?

We can outsource SRP measurement if necessary.

9. What is the maximum doping concentration we can obtain for the p+ handle wafer? (we aim at having it as high as possible)

0.003 ~ 0.005 Ohm cm. Is this acceptable?

- **Do we have other questions?**
- **Are we ready to get out a purchase order?**