Wire Bonding of Silicon Strip Module for FOCAL Calorimeter

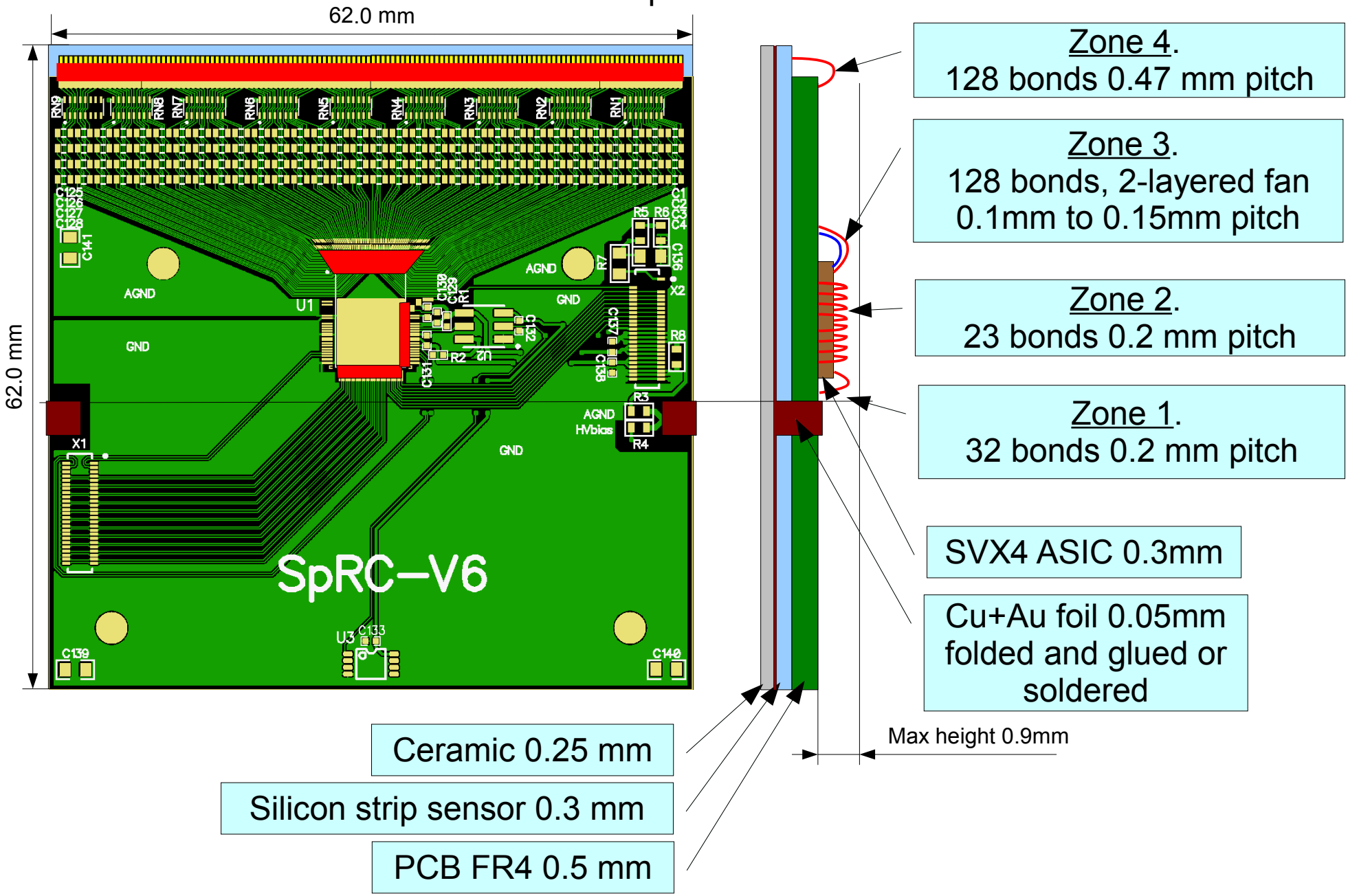
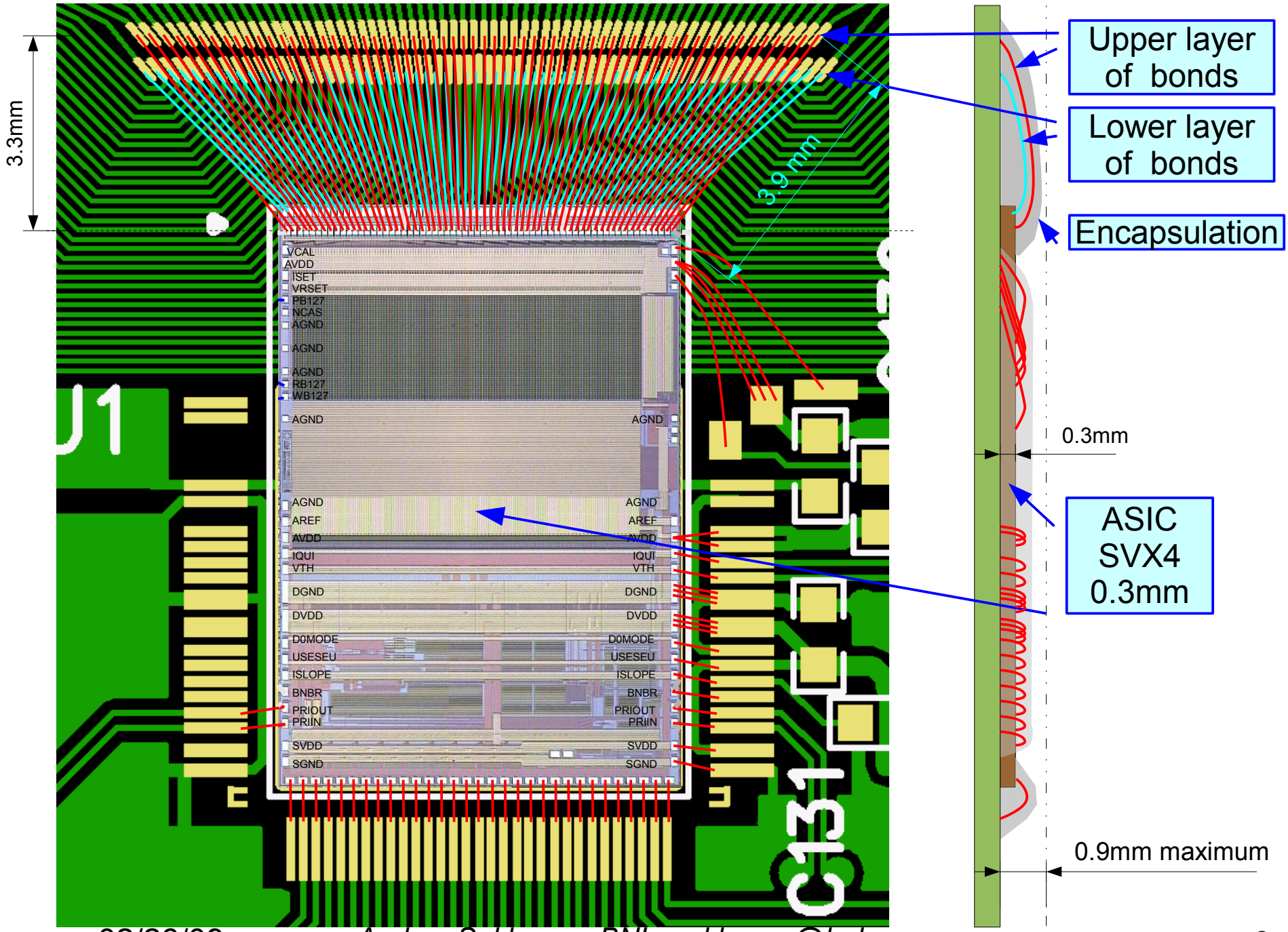
Silicon strip sensor have thickness 0.3mm, it is manufactured at ELMA, Moscow Russia.
A ceramic substrate 0.25mm thick is glued to the bottom of the sensor using Araldite 2011.
The readout card (PCB, 0.5mm of FR4, see slide 2) with ASIC readout (SVX4) is glued to the top of the sensor using silicone elastomer RHODORSIL CAF4 (another adhesive probably need to be found due to an acidity of the CAF4).
The plating of bonding pads is "ENIG == Electroless Nickel Immersion Gold" (Cu ~12 um, Ni ~5um, Au <0.5um).
The longest wire bonding distance is 4mm.
The readout chip is glued to the readout card using conductive epoxy.

The wire bonding should be done in 4 zones see slide 3:
Zones 1 and 2, 56 wires around SVX4 chip, pitch 0.2mm
Zone 3: 128 wires connecting SVX4 chip to RC network, 2-layered fan-like pattern, 64 wires in each layer, lower pitch 0.096mm, upper pitch 0.150mm.
Zone 4: 128 wires connecting readout card to the sensor, 0.470mm pitch.

The wire bonds need to be encapsulated.

The maximum height of the wire bond + encapsulant should be less than 0.9mm.

FOCAL Strip Module



Bonding Diagram of the SVX4 Chip