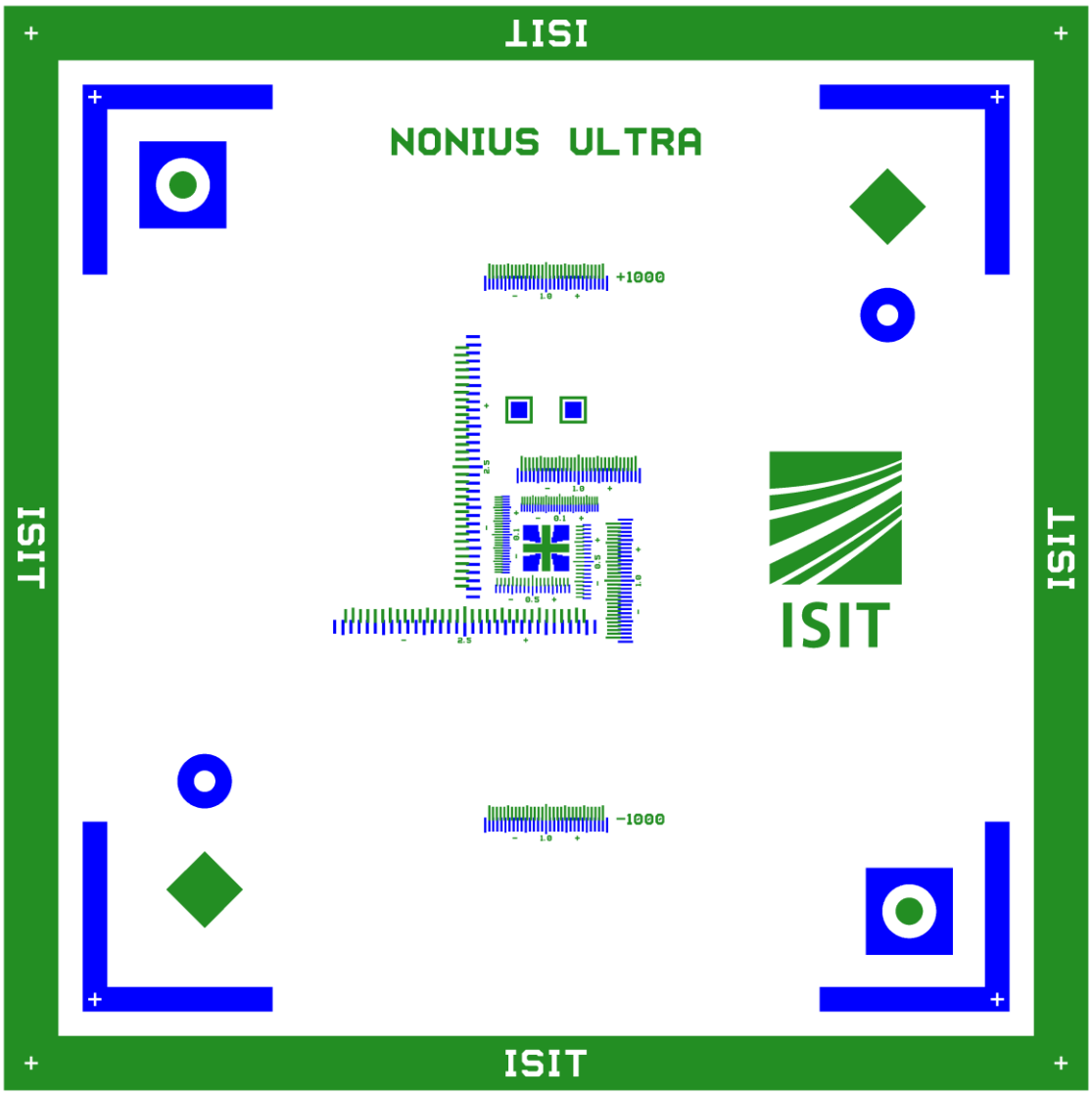
LAYOUT:



Glass die (green) on top of a multiuse substrate (blue).

TECHNICAL DATA:

- alignment calibration set for wafer bonder (a) and pick-and-place equipment (b), consisting of
  (a) two glass wafers or one glass and one silicon wafer
  (b) glass dies and multiuse glass or silicon substrates
- fiducial marks for automated placement and displacement measurement
- vernier scales for manual measurement of linear and rotational displacement:

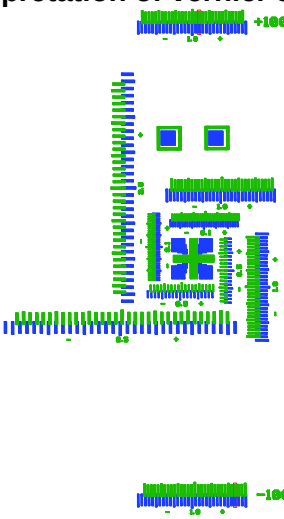
measurement range:	± 40 µm	± 15 µm	± 4.5 µm	± 1.4 µm	15 mrad
resolution:	2.5 µm	1 µm	0.5µm	0.1µm	1 mrad

- substrates are available as 8'' silicon or glass wafers (200 mm diameter); they can be diced on request, e.g. square (135 x 135 mm) or rectangle (180 x 76.5 mm) geometry
- adhesive fixation allows displacement measurement independent of the placement equipment
- easy to use laser cut stencil for manual application of adhesive spray

TECHNICAL INFORMATION:

designed chip size	4.00 mm x 4.00 mm (metal frame on chip)
die pitch	4.50 mm x 4.50 mm
typical die size after dicing*	4.36 mm x 4.36 mm other geometries, e.g. 4x4 dies available on request
metallization*	200 nm Al
wafer material*	chip: borosilicate glass substrate: borosilicate glass or silicon
wafer thickness*	725 µm, other thicknesses available on request
delivery	8" wafer, ~ 1294 dies, diced on tape laser cut stencil, 250 x 250 x 0.150 mm

interpretation of vernier scales



The displacement of the die is calculated from the observed reading on the central vernier scales. In addition the two vernier scales marked with 1000 can be used to calculate the rotational displacement.

$$\text{horizontal displacement} = \frac{\text{top vernier} + \text{bottom vernier}}{2}$$

$$\text{rotational displacement} = \arctan\frac{\text{top vernier - bottom vernier}}{2000}$$

example (see red markings):
ΔX = (2µm + 12µm)/2 = +7µm
α = arctan(2µm – -12µm)/2000 = arctan(-0.005) = -5mrad

contact

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geometry variations

Arbitrary customer-specific layouts including a company's logotype can be realised on 8" glass and silicon wafers.

* Specifications subject to change without notice.